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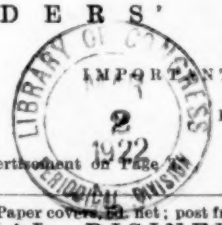
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OF late years much light has been thrown on the causation of asthma, which is not only of interest with regard to the ætiology of this and kindred conditions, but is of still greater interest to the clinician, in so much as it converts a distressing malady, towards the relief of which he was largely impotent, into an intriguing problem, which—so far as relief of the patient is concerned—he can wholly solve in some cases and go far to solve in many others. For a generation or more it has been recognised that certain cases of bronchial asthma had a close association with different forms of dust or scent. For example, Wilson Fox wrote in 1891[1]:—

"There is a peculiar class of patient in whom the paroxysms are induced by certain scents or by the inhalation of the dust of various other substances, and of whom some present this peculiarity (which, however, is quite exceptional), that they are affected by one single cause. Among the most common of these are ipecacuanha, hay asthma, dust of various kinds, the volatilised oxides of lead, fogs and some gases as sulphurous acid, nitrous oxide, and chlorine, and emanations from animals, such as rabbits, cats, and many others."

It was thought that these and kindred substances acted as direct irritants and so set up spasm. In 1910 Meltzer[2] brought forward evidence to show that asthma was an anaphylactic phenomenon—was caused, that is to say, by some substance being introduced into the body which, in the individual affected, was capable of producing vasomotor and other disturbances, more especially in connexion with the bronchial tubes, which were anaphylactic in type. Cases of dust-asthma are not due, therefore, to the irritating quality of the dust, but to the fact that it acts as a foreign protein, and so produces a form of anaphylaxis in a sensitive subject. It is, however, mainly owing to the work of L. Noon, which was continued by J. Freeman after his death, that the group of diseases in which asthma is included have come to be regarded as due to some subtle change in the chemistry (and probably in the physics) of the body by which the individual becomes "sensitive" to certain substances, which thereafter are capable of producing different forms of anaphylaxis. Freeman, working chiefly on hay-fever, devised tests by which the peccant substances could be determined, and he was the first to attempt, again in hay-fever, to "de-sensitise" the individual. This he did by injections of pollen extract.[3] Since then an enormous amount of work has been done on the subject, mainly carried out in America by Chandler Walker[4] and others; I do not think its importance is as yet sufficiently recognised in this country.

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[1] Diseases of the Lungs and Pleura, p. 57.
[2] Jour. Amer. Med. Assoc., 1910, lv., 1021.
[3] THE LANCET, 1911, i., 1572. Jour. of Immunology, vol. i, No. 3.
[4] Archives of Internal Medicine, 1918, vol. xxii., p. 466.

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In this group the outstanding feature of all is the vasomotor disturbance, and it is an interesting fact that an asthmatic with a low blood pressure is more difficult to relieve than one with a satisfactory blood pressure. In asthma no doubt bronchial spasm plays a great part in the production of the paroxysm, but an important factor would appear to be the associated vasomotor disturbance of the bronchial mucous membrane, what Sir Andrew Clark years ago described as an urticaria of this membrane. Another feature is that there is an hereditary transmission of the tendency to "hypersensitiveness" in this group of affections. In most cases of asthma a careful investigation, as has been well shown by Freeman[5] will bring to light cases of hay-fever, urticaria, sensitiveness to food, and other cases of asthma amongst the ancestors or near relatives. An interesting light on this hereditary transmission is shown by the fact that an individual may have hay-fever for some years, and when freed from it develop asthma or urticaria or other members of the group. One woman patient I have seen had suffered from hay-fever whilst a child; later she ceased to do so, but suffered from bouts of urticaria, which in turn were replaced by food hypersensitiveness in the shape of collapse followed by diarrhœa and vomiting after eating certain articles of food. When these attacks ceased, she developed asthma. It would seem that there is transmitted an inherent instability in the body-chemistry of these individuals, and that the particular vasomotor disturbance which follows on the introduction of the activating substance or substances, depends partly on the particular substance, but also on other factors at present obscure. A further example of this is the well-known fact that attacks of asthma may alternate with attacks of eczema, and that when the asthma becomes mild, the eczema becomes more severe.

This instability of the body-chemistry is rarely apparent at birth. It may make its appearance in the first few months of life, or it may remain dormant until after middle-age is reached. This instability is there, but only becomes evident under a certain set of circumstances. In other words, something has to happen to make the individual sensitive to a particular substance or substances.

Sudden Onset and Termination of Hypersensitiveness.

What the mechanism is must be a matter for conjecture, but in practice it is found that hypersensitiveness follows as a rule after some illness, such as a severe attack of influenza, or after some dietetic indiscretion, such as improper feeding of an infant, or after a sudden shock. With regard to the latter, I have had three patients who developed asthma for the first time during an air-raid. Similarly, the hypersensitiveness may go as suddenly and as mysteriously as it comes. The arrest of asthma has been observed at puberty, or after the supervention of erysipelas, chicken-pox, or other febrile disorder; after an attack of purpura, &c. (and this has been observed in all spasmodic affections). Further, I know of a distinguished medical man who suffered severely from asthma until he was 35, at which age he met with an accident in the Alps and sustained several fractures and no doubt some effusion of blood. From that day he has never had another attack of asthma.

ACTIVATING SUBSTANCES.

Vander Veer[6] and other authorities hold that it is possible in 70 per cent. of asthmatic patients to determine the activating substance, and it is probable that the causation in the remaining 30 per cent. is similar, although our present knowledge does not enable us to detect the direct cause. The substance at fault may be (1) animal or vegetable dust scents which are introduced through the air-passages, (2) articles of food, (3) bacteria by absorption from some focus, or (4) a few drugs such as aspirin and quinine.

[5] THE LANCET, 1920, ii., 229.
[6] New York Medical Jour., Sept. 18th, 1920, p. 392.

Innumerable substances come under these headings. The commonest forms of dust, apart from pollens, are derived from horses, dogs, cats, rabbits, feathers, either direct from the animal or some article manufactured from them, such as pillows, furs, &c. Egg-white is a common cause of asthma in children, but other innocent foods, such as wheat, milk, beef, and oysters, have been found to produce attacks in the duly sensitive subject.

As a rule, a very careful history of an individual case and full inquiry into his habits and dietary will give considerable information as to the most likely substances. We can, however, only obtain accurate information by carrying out the skin test, based on the fact that if a man is sensitive to one of these substances in any part of his body, then in the great majority of cases all his tissues are sensitive. Thus a man who has horse-asthma will develop a severe attack after the injection of horse-serum and the ingestion of horse-flesh. The skin test is tedious and takes time, being carried out on lines similar to the von Pirquet test, by means of solutions of a large variety of substances easy to make, and supplied by commercial firms. In some cases it saves time to use in the first instance solutions of a group, such as a solution containing material from a variety of animals. A skin reaction, if positive, is shown by the formation of an urticarial wheal within, as a rule, from 15 to 30 minutes, but a reaction may be delayed for 12 or more hours; hence the patient should always be seen again on the day after the tests are made. As a rule, the more marked the reaction, the greater the patient's hypersensitiveness. The number of tests required will vary with the history obtained, which may clearly show the probability of some animal or food being the cause of the attacks, and then we may sometimes be content to use only confirmatory tests. In many cases reactions are obtained to a large number of substances, and here it is difficult sometimes to formulate the details of treatment. A satisfactory rule is to neglect a reaction unless there is positive evidence of contact of the individual with the substance giving the reaction so close that the latter may reasonably be considered an ætiological factor in that particular case. In other cases, no reaction may be obtained, or at best very feeble ones. There may be a group of asthma cases which are not anaphylactic in type, but the probabilities are against this supposition. In some cases the skin is apparently not sensitive to the tests, and so fails to give reactions; this is certainly true in the majority of instances of the allied group of skin disturbances, such as urticaria. Or it may be that the sensitiveness of the skin varies in some individuals—for example, it may be completely absent after a sharp attack of asthma, in which the patient has apparently de-sensitised himself for a time.

In spite of these difficulties in the interpretation of the skin test, even when aided by a very careful history of the case, it is not too much to say that in over 50 per cent. of cases of asthma, information is obtained in this way which is of great value in our efforts to obtain temporary, or it may be, permanent relief. Vander Veer [8] investigated 135 cases with the following results as to the causal agent: Pollen, 38·5 per cent.; mixed, 14 per cent.; animal, 9 per cent.; bacterial, 8 per cent.; food, 1 per cent.; undiagnosed, 28 per cent. In England we do not find the pollen percentage so high, and the numbers of animal and food asthma are larger.

TREATMENT.

When we have determined the probable cause of the attacks, what can we do? We must, of course, continue the time-honoured treatment of asthma with which we are all familiar, including the treatment of any abnormal condition of the nose, the intestinal tract, or other parts of the body; careful regulation of diet, with the absence of any food after 6 o'clock; avoidance of any strain on the nervous system, and the treatment of any associated bronchitis by means of vaccines or otherwise. We must also continue the usual medicinal treatment and give a weekly mercurial purge. But to these and other well-known measures must be added protection of the patient from contact with the activating substances; if this be impossible, an attempt must be made to de-sensitise him. We can, in effect (1) remove the exciting cause, (2) adopt specific measures to de-sensitise against the particular substance such as horse-dandruff, (3) attempt to de-sensitise the patient against all foreign proteins. When the patient is sensitive to one or more articles of food, such as egg-albumin or milk proteins, these should be removed from the diet. In later life the individual is often able to take the offending foods without detriment. This is in marked contrast to sensitiveness to animals or pollens which apparently may continue throughout the life of the patient. A patient may be de-sensitised to a particular food by giving minute doses of it and gradually increasing the doses, but this necessity seldom arises. In asthma due to animals, such as horses, cats, dogs, rabbits, the simplest thing is to remove the animal and its products, for if we attempt to immunise the patient against these substances, we must be prepared to continue treatment for an indefinite time. We must not be content merely with the removal of the animal or substances derived from them, such as pillows, furs, and the like; the environment of the patient must be thoroughly cleansed from them. This is a practical point of great importance. A dog may be the cause of the attacks, but unless we have the rooms of the patient *thoroughly* cleaned so that there is no possibility of any of the hairs, &c., of the dog remaining, the mere removal of the animal may be disappointing. A patient may give a reaction to rabbits, and may do well at hospital and give up keeping rabbits, but may yet not improve at home, until it is discovered that he sleeps on a pillow stuffed with rabbit fur. A man reacting to feathers may give up poultry yet fail to improve until he ceases to sleep on a feather-bed. So important is detail in this question, and so numerous are the causes of an asthmatic attack that it is best when called to see a case of acute asthma to have the patient placed in a room thoroughly cleaned and devoid of all possible activating causes, such as animals, feathers, flowers, and the like.

IMMUNISATION.

If we attempt to immunise against an animal, we must begin with very small doses, so small that they do not produce a skin reaction, and carefully increase them. After about a dozen injections the hypersensitiveness becomes diminished, if not removed, but the doses should be continued at monthly intervals. In pollen hypersensitiveness it is usually necessary to make an attempt towards immunisation by increasing doses of pollen extract. The results in pollen asthma are better than in hay-fever. It is claimed that it is possible to control the asthma in 50 per cent. of the cases, and to give relief in a further 36 per cent. About 20 injections at intervals of 5 to 10 days are required and treatment should be begun about six weeks before the hay-fever season sets in.

Attempts to immunise patients against all foreign proteins have been made by (1) intravenous injections of peptone; (2) the Danysz method of vaccinating with autogenous or heterogeneous cultures of all the intestinal microbes that will grow on a sloped gelatin or peptone culture; (3) massive intravenous injections of dead typhoid bacilli. All these methods at times give good results, but are often disappointing. Care must be taken not to give too large initial doses, or an attack of asthma will be precipitated. In the case of peptone, the type of peptone is important, and the injection must be made very slowly. The rapid injection of peptone has before now caused death.

PRESENT POSITION AS REGARDS ASTHMA.

From the above short résumé of the work which is being carried on it is clear that the outlook for the asthmatic, previously so hopeless, is now definitely improved; particularly is this true of asthma in childhood and asthma, uncomplicated by bacterial infection, causing bronchitis and emphysema. There

is still much work and research to be carried out. We do not know in the least what hypersensitiveness really means. Coke,[7] in a paper based largely on work done in my wards, has given an ingenious explanation, but much further investigation is required. Hypersensitiveness is probably brought about by the passage of the offending substance unaltered through the mucous membrane, and that the majority of us owe our protection to some quality in the mucous membrane, in which the asthmatic or the member of the allied group is deficient. For example, Schloss[8] reports that a boy was given albumin water for diarrhœa when a few days old—that is, at a time when egg albumin can pass through the intestinal mucous membrane. This appears to have been his sensitising dose, for later on the first spoonful of egg produced an attack of asthma which was nearly fatal. It is interesting to recall that Besredka[9] was unable to produce typhoid by the injection of the living typhoid bacilli until he had previously given ox-bile, which had the necessary effect on the mucous membrane, and allowed the bacilli to pass through unaltered. Asthma is often relieved by cocaine inhalations, possibly because of their effect in reducing the absorption capacity of the nasal mucous membranes. Again, Francis's method of relieving asthma by cauterising the septal nerve of the nose may act by its effect on the absorption capacity of the nasal mucous membrane. In a similar way some of the good effects of liquid paraffin are probably due to its action in interfering with the absorption of toxic products. The administration of chloroform will prevent anaphylaxis in guinea-pigs. It is stated that the addition of certain substances, such as minute quantities of hyposulphite of sodium[10] to sera, will prevent anaphylactic effects.

CONDITIONS ASSOCIATED WITH HYPERSENSITIVENESS.

The hypersensitiveness in some cases is associated with some disturbance of the endocrine glands. Thus some cases of asthma and of urticaria will yield to thyroid medication, whilst extracts of the suprarenal glands and the pituitary body in most cases give the quickest relief of the acute attack. This and other facts suggest that we shall have to look to pathological chemistry for the explanation of asthma. The hypersensitiveness is increased by a number of conditions. Thus, an east wind or mental strain, an attack of indigestion, often appear to precipitate an attack.

There is one further point on which I would touch. Is it not possible that this hypersensitiveness, so clearly present in the asthma group, plays an important part in the determination of other diseases, even in some in which we are inclined at present to give the chief rôle to micro-organisms? For example, why does a man who sits in a draught or gets his feet wet suddenly develop an attack of pneumonia not due to a type of pneumococcus foreign to his body, but to the type of pneumococcus always found in his air-passages? This is not a case of true infection. Is it not possible that the surrounding conditions have produced some subtle change in his blood with the development of some chemical factor which aids the growth of the pneumococci and so makes him sensitive to them. How is it that, when we all have living tubercle bacilli within us, only about 10 per cent. develop active manifestations of this disease? In Berlin between 1913 and 1918 the tuberculosis death-rate doubled, and during the war 40,000 men were discharged from the British army with the diagnosis of pulmonary tuberculosis. This was not due to recent infection. Is it not possible that conditions led to some change in the chemistry of the body which enabled the tubercle bacilli to attack, in other words, that the individual became sensitive to this micro-organism. Again, in some 90 per cent. of cases, relapse in pulmonary tuberculosis is not due to fresh infection, but to over-exertion. Is some chemical substance formed as the result of over-exertion which makes the body more sensitive to the tubercle bacillus?

[7] Brit. Med. Jour., 1921, i., 372.
[8] Semaine Médicale, 1913, p. 613.
[9] Annales de l'Institut Pasteur, t. xxxiii., 1919.
[10] Lumière and Chevrotier, C.R. Acad. Sciences, t. clxxi., 1920.

CONCLUSION.

The older writers drew attention to the effect of atmospheric changes, the alteration of the water-level and so on, in regard to epidemics. May not the environment affect our body chemistry and so make us more sensitive to various organisms? Why does an east wind affect so many people adversely, particularly those suffering from fibrositis? Again, are we sure that vaccines always act as immunisers when they produce good effects? Is it not possible that they sometimes act by de-sensitising, as they (including tuberculin) may do in the asthma group?

That we may confidently look to pathological chemistry to lighten many a dark place in our knowledge of disease on the above lines is shown by Sir Almroth Wright's work[11] on the bacillus of Welch in the production of gas gangrene. He has shown that this bacillus is wholly incapable of producing disease when injected into the veins of a healthy individual, but that if the alkali of the blood is in any way neutralised by carbonic acid or lactic acid, or if a regional or general muscular acidosis is produced, the bacillus will produce gas gangrene which may be so intensive that it kills the subject within 48 hours. Again, it appears that the infective organism of epidemic encephalitis behaves differently according to the tissue which it attacks. Thus Levaditi, Harvier, and Nicolau[12] have shown that the virus of febrile herpes, which has an exclusive epitheliotropic affinity, may, by a sudden exaggeration of its virulence, be transformed into a virus with neurotropic affinity and produce v. Economo's disease. Similarly, the virus of epidemic encephalitis with its neurotropic affinity is capable of causing cutaneous lesions when inoculated under the skin.

An Address
ON
HYPNOSIS AND SUGGESTION.

Delivered at King's College, London, on Nov. 1st, 1921,

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WE have now to consider the nature of hypnotism, the process of hypnosis, the nature of suggestion and the relation between hypnosis and suggestion. Beginning with hypnosis—historically the practice of hypnosis preceded the theory and practice of suggestion, and the historical order throws light upon the scientific relationship.

HYPNOSIS.

The word hypnosis was invented by Braid, to describe a state of mind and body into which some patients are thrown by certain special methods; this state very closely resembles a state of sleep, and had been produced years before by Mesmer. Certain phenomena and characteristics of the mind and nervous system first observed in mesmerism were later described under the title hypnotism and later still under that of suggestion. The events of recent years have enabled us to approach the subject again in an unbiassed way, and to a certain extent independently of earlier literature. After the work of Mesmer and people like Braid, Elliotson, and Esdaile, there grew up a tendency for writers who had no great practical experience to copy from one book to another statements concerning the laws of hypnosis without any close scrutiny or testing of those laws. Up to the time of the war the

[11] Technique of the Teat or Capillary Glass Tube, Wright and Colebrook, second edition, 1921, p. 151.
[12] Bulletin de l'Institut Pasteur, No. 23, Dec. 1st, 1921, p. 856.

number of typical hypnotic patients that any single medical man had opportunity of seeing was comparatively small; thus there was a distinct tendency for his views to be biassed by his own findings, and for his theory to be supplemented by statements that he found in books.

The large number of nerve cases produced by the war gave material of unrivalled excellence for the study of the phenomena of hypnosis, and some of us very quickly found that our practical experience was to a great extent at variance with what we had read. Moreover, the writers were at variance on fundamental matters, some holding that the more normal the person, the stronger his will, the greater his powers of concentration, the more easily was he hypnotised—i.e., that hypnotisability was a sign of mental health—whilst others stated that the more normal the person, the less susceptible he was to hypnotic influence. Nor was it evident what types of the weak-minded had been dealt with in the experiments.

We found that in cases of shell-shock the patients were easily hypnotised immediately after the shock. Moreover, the more definitely dissociated they were and the greater the extent of the amnesia the more easily were they hypnotised. On the other hand, patients who showed no loss of memory were not easily hypnotised; I do not say they were not hypnotisable, but mild methods entirely failed to produce the hypnotic sleep.

METHODS OF PRODUCING HYPNOSIS.

We may here conveniently consider the various methods used in producing hypnosis. Generally speaking, the monotonous stimulation of sense organs tends to produce hypnosis—to throw the patient into a state that resembles sleep. The patient lies on a couch and fixates, say, an ophthalmoscope mirror or a faceted diamond held about ten inches from the eyes and slightly above the normal plane of vision, so that to fixate it he must turn his eyes upwards and inwards to the bright object. After a few minutes' fixation he will, if he is a satisfactory subject, experience more and more difficulty in keeping his eyes open, and will pass into the hypnotic state. Suggestions may be given to him that he will get drowsy and that he is going to sleep, with the result that he falls into an artificial sleep but continues to hear the words of the operator, and later may lose consciousness of everything else. This is a deep stage: he is apparently asleep to everything except the physician's words. Lighter stages can be produced, where he is conscious of what other people say or conscious of voices around him, but where nevertheless his mind is concentrated upon the physician's words. He has no great power to move his attention from one thing to another. It is fixed upon the words of the physician.

The bright object may be replaced by a monotonous sound. A metronome beating at two a second is very useful. The patient lies listening to the beat of the metronome and gradually falls into a state of dissociation. Another means of producing sleepiness is the use of monotonous rhythmical passes with or without contact. We may smooth the forehead at a definite slow rate, or again we may make passes down the subject's body without touching the body at all. This method, of passes without contact, was much used by Mesmer and seems to have a peculiar effect in certain cases. I have met with patients who resisted other methods but were readily hypnotised by this method.

These are the more fundamental ways of producing hypnosis, and it seems unnecessary here to refer to others, as they have no special theoretical significance. We may sum up by stating that all recognised methods of producing hypnosis are methods of holding the attention, and so bringing about dissociation.

To return to the war neuroses: when dealing with shell-shocked soldiers, all that was needed was to tell them with conviction that they would go to sleep but would continue to hear what was said to them by the physician. They at once passed into a sleep, and we could secure hypnotic phenomena in varying degree from them afterwards. The depth of hypnosis exhibited varied directly with the degree of dissociation already existing when the patient reached the physician. The men had already become dissociated through inability to deal adequately with the intense emotional strain produced by the shock; they were, in fact, already hypnotised. Moreover, we discovered upon re-associating their minds after a single hypnosis that they had thereby been rendered less susceptible to hypnosis—and this not because they were resisting, for they were only too anxious to proceed with the treatment, but because they had acquired a greater strength of mind, a greater unity of consciousness, which rendered the appeal of the hypnotist less effective. Re-association of the mind, rather than increased power of resistance, was the determining factor in this loss of susceptibility.

SUSCEPTIBILITY TO HYPNOSIS.

If we admit that patients who are easily hypnotised are definitely abnormal, and that hypnotisability and this form of abnormality go hand in hand, it would appear that the perfectly normal person should be insusceptible to hypnosis. Yet we know that a certain proportion of apparently normal people can be hypnotised. Are we, therefore, to say that hypnotism itself is a normal property characteristic of a certain proportion of normal people, and that the hypnosis of which we have been speaking—the hypnosis of the shell-shocked soldier—is something different? That is one alternative. The other is that hypnosis is always the same whether light or deep, that dissociation is always linked up with emotional incompatibility, and that these apparently normal people, who are hypnotisable to a slight degree, are to that degree abnormal. I hold the second view. No one is completely normal. We are all abnormal in some respect. We may agree with Moebius that "everyone is somewhat hysterical." We are none of us complete units. There is a constant tendency for certain of our emotional trends to break away from the rest, a tendency for each of us to attend to the outer world not as an integrated personality but with one of the aspects of his personality. As William James pointed out, each is a system of many selves. No one is a completely unitary system of such selves. We have various desires that, while appealing to one of the selves, are incompatible with others; we try to make them compatible with all under the guidance of our dominant personality, but we never completely succeed. Unity of personality is an ideal rather than a fact; but some persons are born with a greater tendency towards dissociation. These suffer from hysteria or the effects of mental strain; they are easily hypnotisable, and I claim that their hypnotisability is a pathological characteristic, not a normal characteristic. In reaching this conclusion, I am inferring according to the principle of concomitant variations.

We conclude that the hypnotic state is a state of dissociation, while the ideal normal state is a state of association. It follows that hypnosis as such is a bad thing, not a good thing for the patient. Consider an abstract case of an individual who is practically normal and under ordinary circumstances not hypnotisable; suppose that that person is subjected to an emotional appeal to one of his many selves, to the exclusion of the others. It may happen that that self or tendency breaks away from the other tendencies of his mind. A dissociation is started, and he at once becomes hypnotised because he is dissociated. The apparently normal mind was not an absolute unity; in it there was a slight tendency to dissociation. The emotional appeal increased that tendency and the patient became hypnotisable. Under hypnosis the dissociation increases, the patient becomes more hypnotisable, and so the situation gets worse and worse. Turn then to our experience of patients who have been repeatedly hypnotised. The so-called "circus horse" subjects of the Salpêtrière became more and more weakly, less and less able to manage their own affairs.

The repeated hypnosis did them no good. Quite lately a book was published in France giving the life of a lady who seemed to have clairvoyant powers and who was hypnotised repeatedly and to a high degree some 20 or 30 years ago. She has become less and less able to look after herself. I myself have seen several patients who have been hypnotised many times by different doctors, and my experience certainly is that they became less able to look after themselves. The general effect of repeated hypnosis is definitely bad for the subject. It is most important to think clearly about this. If you agree that hypnosis corresponds with dissociation you will at once agree also that it is in itself bad for the subject.

Relation of Hypnosis to Suggestion.

As regards the relation of hypnosis to suggestion, the various methods that I have described of producing hypnosis seem to be methods of inducing sleep, some of them are most certainly methods of inducing sleep by suggestion, but they are not all methods of that nature. Consider shell-shocked men. The patients are already hypnotised—they are in the same mental state as other hypnotised persons—except that they are not *en rapport* with a hypnotist. All that is necessary is for the doctor to get *en rapport* with such a patient, and all the ordinary phenomena of hypnotism can then be obtained. Even if we admit that for the most part hypnosis is produced by suggestion of sleep, the effects obtained in cases that are deeply hypnotised can scarcely be accounted for as results of suggestion. Many cases pass into deep hypnosis at once, and many of the phenomena then observed are phenomena relatively independent of suggestion. For example, the patient when he is deeply hypnotised may be found to have a much wider memory, a memory for a much larger extent of his past life than he had before. Or take a patient with loss of memory; we can easily hypnotise him and often find that his lost memories come up, although he has been given no suggestion whatever with regard to these lost memories. In other cases it is true that you have to suggest that the memories will come back, but here again it is difficult to plead that the recall of the memory is entirely the effect of suggestion.

It would seem that there are two distinct characteristics present. There is hypnosis, which is a form of dissociation, and there is an increased suggestibility, and the suggestibility and depth of hypnosis do not vary concomitantly. They may vary in proportion to one another in the lighter stages of hypnosis, but with a more pronounced degree of hypnosis there is loss rather than gain of suggestibility. In many respects the deeply hypnotised patient is not suggestible at all; he has passed beyond your powers of suggestion. His power of response is more selective. What has really happened is that you have split off one small part of his mind; the rest of the mind is dissociated from this small part and immune to hetero-suggestion. The result is that after waking the patient up the immediate effects seem to be good. The suggestion has taken root, but only in a small portion of a dissociated personality and quickly wears off. It would seem that the distinction between suggestion and hypnosis is such that you can practically separate suggestion and hypnosis as methods of dealing with patients. Hypnosis is a valuable method of dealing with loss of memory, of dealing with dissociation already produced by other causes, for you can use it once to recover the lost memory and then re-associate the patient. By so doing you make him a more normal man.

On the other hand, when using hypnosis merely as a means of increasing suggestibility you take away with one hand what you give with the other. You perhaps increase the tendency of the suggestion to take temporary effect, but you also diminish the coherence of the patient's mind so that he becomes more susceptible to bad as well as to good suggestion, and his last state is worse than his first.

Suggestion Without Hypnosis.

Is it possible to employ suggestion without hypnosis? I am inclined to believe it possible, although perhaps most people would describe such cases as cases of very light hypnosis. It seems to me that the dissociation of the mind of a normal person falling asleep in the ordinary way is itself a normal dissociation, different in value from the dissociation of hysteria and hypnosis, and that production of this normal dissociation suffices in order to apply suggestion to the patient. In sleep it would seem that the so-called higher mental functions, those associated with the cerebral cortex, are dissociated *as a whole* from the so-called lower unconscious functions, whereas in hysteria and hypnosis the dissociation is within the realm of the higher functions. They are no longer a unity.

Definition of Suggestion.

I have not yet defined suggestion. F. W. H. Myers defined it as a successful appeal to the subliminal, Baudouin as the subconscious realisation of an idea. This second definition will serve our purpose; it involves a subconscious, the possibility of acceptance of an idea by that subconscious, and the realisation of the idea by subconscious mental activity, a certain latent period elapsing between the acceptance and the realisation of the suggestion. There is a great deal of evidence for the view that in normal sleep the subconscious in its entirety is more easily approachable. The conscious mind that has dominated it during the day is losing its hold and sinking more and more into abeyance. In this situation ideas that present themselves to the subconscious have a greater chance of making an impression on the subconscious and being accepted by the subconscious. When this happens the subconscious proceeds to realise the idea.

It has been proposed to compare the relation of the conscious to the subconscious with the relation of external to internal. The mind has developed in relation to an external environment which it has had to learn to know and act upon. In that process it has become conscious intellect and conscious will. But the affairs of the body itself have to be carried on; a certain portion of the mind presides over these bodily functions, even over the cerebral cortex which is supposed to be in the most intimate relation to conscious mental activity. This part is the subconscious mind and has as its main characteristic a sensitivity to suggestion, even as will is the active characteristic of the conscious mind. If you wish to bring about a change in the subconscious attitude towards the environment will is ineffective because the material for dealing with which it has been evolved is quite different in nature from the subconscious. The subconscious is susceptible to the reception of ideas in a passive way and is able to realise those ideas in its own manner and produce changes in the body. Among these changes we may assume that it can produce changes in the cerebral cortex, that it may the more easily produce changes in parts of the body that are related to the nervous system.

This is one possibility. I am not exactly advocating it; the evidence is not sufficient, and it may seem rather too extraordinary to fit in with accepted results of research in neurology, biology, and physiology. What we are compelled to accept, however, are the facts themselves. We do find situations where the will is apparently powerless and the intellect useless, yet where suggestion at once succeeds in producing effects if the patient can but get into a half-waking half-sleeping passive state of mind. Under these conditions calm and impressive suggestion does not stir up opposition. The ideas suggested tend to realise themselves, results are obtained, and subsequently—what is still more important—the patient finds he is able to use the method himself. He is able to put his mind in a condition in which conscious mind ceases to strive and allows the subconscious to assume control. Unlike volitional concentration of the attention, the concentration obtained in successful auto-suggestion is free from strain. Not only are the muscles relaxed; all conscious

mental process is also relaxed, and the patient is able himself to call up the idea of the desired end quietly, without definitely speaking the words, and in calling up these thoughts of complete recovery or thoughts of improvement he has the mental attitude of complete certainty. He knows that his thoughts are coming true. He knows that the suggestion will realise itself. He knows that during sleep the subconscious will realise the idea more and more fully. Under these conditions ideas presented to the patient by himself do tend to realise themselves.

THE NORMAL STATE OF INCREASED SUGGESTIBILITY.

What is this state of mind in which the power of suggestion increases? Many would say it was a state of light hypnosis, but, in my view, it is a normal state. It is a state that perfectly normal persons pass through as they lose consciousness in sleep; moreover, it is a state that has no bad effects. From experience I conclude there is no dissociation in this state. You can limit the range of conscious activity, get an increased suggestibility for the moment, and then, when the patient returns to the normal state, he is found to be no more susceptible than heretofore to hetero-suggestion. In this it differs from hypnosis. A person who has been hypnotised is more susceptible.

An impression may be obtained from some writings that the longer the periods during which auto-suggestion is practised the better the effect. It is, however, much better in using auto-suggestion to get the state of mind for a very short time, for a minute or less, and not to attempt to keep this frame of mind for a longer time. The reason for this is that a short interval of time suffices to secure the state of mind, to establish contact with the subconscious and to implant the idea of the desired end. The subconscious then, without further assistance from consciousness, goes on to realise the idea at its own leisure. In this way you take advantage of a normal suggestibility and are free from any danger. But if you try to prolong the state for several minutes you run the risk of your own subconscious throwing up an opposite suggestion. Patients who suffer from melancholia have themselves told me that although the suggestion may seem to work when they get treatment from me, when they seek to suggest to themselves, all the time a small voice is negating the idea they are striving to implant. This opposition is often of more effect than the auto-suggestion and the patient becomes worse rather than better. In such circumstances if you shorten the time spent in auto-suggestion you secure a better result.

THE "LAW OF REVERSED EFFORT."

Coué, of the New Nancy School, has sought to summarise the facts in his so-called law of reversed effort. He has stated it in this way: (1) when the will and imagination are in conflict the imagination always wins; (2) in conflict between will and imagination the imagination varies in direct ratio to the square of the will. He is using the terms will and imagination in no clearly defined sense, but put roughly he pictures a struggle between the active conscious striving of the will and imagination in the shape of a suggestion that, having been accepted by the subconscious, tends to realise itself through subconscious mental activity. He observed that over-anxiety counteracts the effects of suggestion. Take an ordinary experience on seeking to sleep. If you get anxious to go to sleep you get wider and wider awake. Or again, take a case of temporary loss of memory. If you make a greater and greater effort of will to recover the memory you really seem to drive it farther and farther away, but when you change your mental attitude to a state of passive waiting the lost memory will often come up. You have freed yourself from effort and so created the conditions under which the subconscious works and gives results.

Is this law of reversed effort the best way of formulating the doctrine? If it is we are faced with rather a serious situation, for it tends to discount the will. It makes suggestion something absolutely different from the will and puts the will in a definitely inferior position as regards these different forms of nerve illness and as regards ordinary life. Are we forced to adopt this position? It seems to me that we are not. The facts are true, and have long been recognised. It is the point of view that Coué emphasises in his law that I would criticise. Let us consider how the will and imagination do come into conflict with one another. Supposing you are anxious to remember a name, you make an effort of will and find the name disappears. Then you adopt the attitude of auto-suggestion and the name comes up once more. Perhaps you want to introduce the person to another friend of yours and you want to avoid appearing foolish, but the name will not come. You make an effort of will to secure it, *but your effort of will is a special kind of will, a rather weak fitful form of will, because it carries with it fear of failure.* Just as a weak swimmer, suddenly seized with fear, strikes out irregularly and rapidly and sinks, so your will under the influence of fear becomes a spasmodic useless will that must be abandoned before the lost memory will float up. The fear of failure is a very prominent part of your total mental state. Inability to remember the name arouses fear of a continued inability to recover it. This added emotion wins the day and your spasmodic will is vanquished. Really, however, the conflict is not between your will and the suggestion, but between one suggestion and another; the suggestion or idea that the name will come to you and the suggested opposite. By willing in that spasmodic way you have produced the counter-suggestion. This is reinforced by the emotion of fear, and makes your will the kind of will that is inferior to suggestion. The complete form of will is never in conflict with suggestion. This will works, not through an effort of determination, but with a calm assumption that, of course, it is going to succeed. This kind of will is not inferior to suggestion. In dealing with patients we find that if the law of reversed effort is explained to mean that entire passivity will secure a certain result, there is often improvement at first, but the patients are mystified and find that eventually they have to use their wills in one form or another. It becomes necessary to explain that spasmodic, impulsive will is not an expression of the full personality, that what they should cultivate is a will based upon a quiet, calm, firm belief in the reality of health and the innate tendency of body and mind towards health. Such a form of will is not in opposition in any way to suggestion for their good; in fact, their individual suggestions are merely aspects or parts of that will. Hence I cannot help feeling some doubt about this formulation of the law of reversed effort. You must avoid strain in carrying out hetero-suggestion or auto-suggestion, but it is a dangerous doctrine to say that you must avoid will. Obviously you must avoid spasmodic will, but you need the steady determination to retain a real belief in the power within that works towards full health of body and mind. You must will to be well, your efforts of will being the nature of a studied resolution coupled with a set calm faith that we are in harmony with, and not unimportant parts of, a much wider spiritual system.

THE Chelsea Hospital for Women has received a grant of £400 from the trustees of the Zunz Bequest in support of their Annie Zunz wards.

Mr. Edward Morell Holmes, F.L.S., Ph.C., a past-president of the British Pharmaceutical Conference, and for many years curator of the Pharmaceutical Society's museum in London, was, on Jan. 31st, 1921, knocked down by a motor-car near his residence in Sevenoaks, and as a consequence suffered the loss of a leg. On Jan. 31st, 1922, as the result of an action which he brought, Mr. Justice Salter, in the King's Bench Division of the High Court, gave judgment for £1000 damages against the owner of the car, Mr. A. D. Laurie, of Sevenoaks. Mr. Holmes is now aged 79.

THE TREATMENT OF GASTRIC ULCER.

Being Remarks made at a Meeting of the Section of Medicine of the Royal Society of Medicine on Feb. 2nd, 1922.

I.—BY SIR BERKELEY MOYNIHAN, K.C.M.G., C.B., M.S. LOND., F.R.C.S. ENG.,
SENIOR SURGEON, LEEDS GENERAL INFIRMARY; PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF LEEDS.

II.—BY A. J. WALTON, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO THE LONDON HOSPITAL.

I.—By Sir Berkeley Moynihan.

GASTRIC ulcers are usually classified as acute and chronic. An acute gastric ulcer hardly deserves its name. It is a crack, chap, fissure, or erosion on the surface of the mucosa, extending, if it extends at all, rapidly and narrowly through the coats of the stomach to the peritoneal surface. On its way it may open a vessel, and so cause hæmorrhage; if it reach the serous coat no time for an adequate defence has been allowed, and a perforation results. Hæmorrhage and perforation are the only clinical evidences of an acute ulcer. When at the time of operation, or upon the post-mortem table, an acute ulcer is found, it must not be held to account for the presence of symptoms of which the patient has complained for months or years, in intermittent attacks.

The relations between an acute ulcer and a chronic ulcer are a matter of surmise rather than certainty. Authors whose work demands our approbation assert that a chronic ulcer develops from an acute ulcer. By the time that the chronic ulcer is recognised by the pathologist or by the surgeon it is almost always of such size and depth that its earliest stage is long past, and no confident opinion can then be held with regard to it. The chronic ulcer seen upon the operation table is a well-established lesion, in which the whole thickness of the mucosa has perished, and in which a defence, an attempt at healing, has been set up to a degree which may cause the ulcer to be callous, with an indurated edge and a firm base. It is not seldom that the penetration of the coats of the stomach has occurred to a depth which has caused adhesion to the liver, pancreas, or abdominal wall.

Diagnosis.

Treatment of a gastric ulcer, whether medical or surgical, must be based upon an accurate diagnosis. Probably no diagnosis of any other abdominal disease is so apt to be erroneous as that of gastric ulcer. If these diagnoses, based upon a moribund tradition, are accepted, the gross numbers of gastric ulcer are found to be enormous, with a great preponderance of cases among females. Chronic gastric ulcer is a rare disease, less than half as frequent as duodenal ulcer, and it occurs about twice as often in men as in women. Its diagnosis upon clinical evidence alone is full of difficulties and beset with error, and chemistry offers the slenderest help. And this inaccuracy of medical diagnosis has resulted in surgical disasters unhappily very numerous. Upon grounds that seem sound, and with evidence apparently unassailable, a diagnosis of gastric ulcer may be made; the symptoms have been so serious and so often recurrent that an operation is advised. The diagnosis of gastric ulcer is accepted, and gastro-enterostomy is performed when no lesion exists in the stomach or duodenum to justify it. The patient is made worse rather than better. And so physicians who see the surgical failures will tell us that gastro-enterostomy is an operation giving uniformly bad results, and that the surgical treatment of ulcers of the stomach or duodenum is often disastrous. We who see many cases of these disorders know that it falls to our lot sometimes to undo the work of others, to unmake an anastomosis between the stomach and the duodenum that was never needed. In such cases I have on a few occasions known a jejunal ulcer develop, a condition vastly more serious and more painful than the original lesion, if any, that was wrongly diagnosed. And error of diagnosis affects also the estimated results of medical treatment. If a gastric ulcer is diagnosed when none is there, of what value is our assessment of the efficiency of the medical treatment directed to the phantom lesion?

So important is the need for a correct diagnosis before any treatment is commenced, or before judgment is passed upon the merits of treatment advocated by even the greatest of experts, that all opinions—based only upon clinical evidence—however authoritative they appear to be, should be ignored. There are at present two methods, and two methods only, of making an unequivocal diagnosis of gastric ulcer; recognition by the radiologist, inspection by the surgeon. We need evidence based upon a successive series of events before we can appraise truly the value of therapeutic measures. Such events are: (*a*) Diagnosis of the ulcer by one of these methods; (*b*) treatment carried out by the Sippy or other method, based upon lavage, dietetic control, administration of drugs; (*c*) inspection of the stomach by the radiologist, showing that the ulcer is healed; and (*d*) a clinical survey, and a further radiological examination in, say, one, two or three years, to show that the ulcer remains healed.

Inefficiency of Present Medical Treatment.

The present medical treatment of a chronic gastric ulcer is woefully inefficient. For the rich it is possible; for the poor it is hardly to be attained, since the hospital accommodation in the country is grossly inadequate for the treatment of this, and of many other diseases. Medical treatment, if properly carried out for a sufficiently prolonged period, should enable an ulcer to heal. The need for surgical treatment is a confession that such treatment is unattainable or has failed.

If, to the surgeon's reluctance (for the surgeon is a physician at heart), an operation is necessary, what form shall it take? The growth of surgical methods in the treatment of chronic ulcer has been gradual. In the earliest years of gastric surgery the cases that came for treatment usually showed an obstructive lesion at or near the pylorus. Gastro-enterostomy then acted like a charm. The pinched, wasted, unhappy sufferer, dreading every meal, was able to take food with a relish that he had almost forgotten. He gained weight, knew the joys and the vigour of life once again, and became a decoy for other dyspeptics. They unhappily, if diagnosed as examples of gastric ulcer when no ulcer was present, were similarly treated, with results which were discreditable both to the clinician and to the operator.

Surgical Treatment.

Surgical treatment, if it is to be uniformly successful, and based upon a long survey of the patient's subsequent history, must deal once for all, if that is possible, with the lesion responsible for the symptoms. Temporary relief follows medical treatment; if nothing better follows surgical treatment, there is no advantage in operation. Surgery must justify itself not only in the immediate safety of its procedures, but in the giving of sustained good health in respect of the organs with which it deals. It is not only the number of the recoveries that count, but also the quality and the permanence of each. The preparation of a patient for operation is of great importance. In addition to the routine examination of organs and secretions, two special points I think require emphasis: the need for the examination of the teeth and accessory sinuses, and for the administration of glucose in large quantities or for the direct transfusion of blood. The source of the infection which has helped to cause the ulcer may be discovered by the former; the effects of the weakness, wasting, and desiccation of the patient are counteracted by the other. The procedures that have been adopted are the following: (1) Gastro-enterostomy; (2) excision of the ulcer; (3) gastro-enterostomy combined with excision; (4) gastro-enterostomy combined with destruction of the ulcer by cautery (D. C. Balfour's operation); (5) median resection of the

stomach "sleeve resection"; (6) gastro-enterostomy combined with jejunostomy (Moynihan's operation); (7) partial gastrectomy.

Where there is so much choice it is evident that no operation has, in the popular judgment, surpassed the others in safety and success. The operation of gastro-enterostomy has been the most frequently performed of all operations. In the earliest days most of the cases coming to the surgeon for relief were those in which pyloric obstruction was present. The results of the short-circuiting operation were very striking and immediate, and the mortality was low. Largely owing to the advocacy of Doyen, the range of the operation was extended, and cases of gastric ulcer in which the lesion was in the body of the stomach, or even at the cardiac end, were treated by this operation. The results were by no means so good; there were still satisfactory recoveries but there were many that gave dissatisfaction. A revision of my own early cases showed that the results were sometimes good, often indifferent, and sometimes bad, secondary operations being required or carcinoma making a tardy appearance

1. *Gastro-enterostomy.*

This evidence as to the value of gastro-enterostomy in my own cases, and the conflicting views of many surgeons of equal experience, led to a consideration of the means by which the operation produced its results. Two views were held: (1) That the operation was purely mechanical in its effects. The making of an opening between the stomach and the portion of the intestines created an alternative and easier route for the passage of food. Retention, therefore, did not occur; indeed, the emptying of the stomach proceeded more rapidly than was normal. Now retention in the stomach is due to many causes connected with a chronic ulcer. Some of these are: (*a*) Cicatricial stenosis. (*b*) Spasm at the level of the ulcer, as shown by the "incisura" of the radiographers. (*c*) A spasm of the pylorus not constant but occasional, occurring even when the ulcer is in the body of the stomach or at any part of the lesser curvature. Gastro-enterostomy attained its greatest efficiency when a scar at or near the pylorus was causing a high degree of obstruction. The fact that an obstructive spasm is present even when the ulcer itself does not obstruct accounts, I think, for the relief which gastro-enterostomy gives in such conditions. Radiography shows that a pyloric spasm causing a "six hour retention" of food is present in about one-third of the cases of ulcer on the lesser curvature of the stomach. This is roughly the proportion of cases improved by gastro-enterostomy. Such value as gastro-enterostomy possesses in cases of gastric ulcer I believe to be due entirely to the short-circuit which avoids a pyloric muscular obstruction, and prevents the undue retention of food in the stomach. (2) The second view was that the operation possessed a "physiological" value. On this hypothesis the entrance of the alkaline bile and pancreatic juice through the anastomotic opening produces in the stomach a medium whose reaction is favourable to the healing of an ulcer. Now a cell of the gastric mucous membrane is born in an acid medium, lives its life and performs its due functions in an acid medium, and perishes in an acid medium. If the conversion of this medium from an acid to an alkaline one is to be described in a word, it should surely be "anti-physiological." Is there any reasonable proof that an alkaline medium favours the healing of an ulcer? Of surmise there is no end, but of certainty, nothing. I have given reasons elsewhere for the difficulty I find in believing that the view of the "physiological" action of the operation of gastro-enterostomy can be supported by any argument or any experience that will bear discussion.

It is interesting further to note that when gastro-enterostomy has been performed for duodenal ulcer a gastric ulcer may develop. Sherren and I have both observed this, and cases are reported from the Mayo Clinic, and by Coffey. I have known perforation of a second and a third gastric ulcer occur after gastro-enterostomy had been done for the first, which remained unhealed. Sherren records the development of gastric carcinoma upon an ulcer which followed the performance of gastro-enterostomy for duodenal ulcer, and I have had a similar experience. For all these reasons I think that gastro-enterostomy, if indeed it is practised at all, should be reserved for those cases in which the ulcer is distal to the opening to be made, in which no reasonable doubt can be entertained as to the benignity of the ulcer, and in which the patient's condition renders a more extensive operation too hazardous. As a customary procedure it should be abandoned, for its immediate mortality is little different from that of gastrectomy; after its performance malignant changes in the ulcer may develop or progress and cause death; the ulcer may fail to heal, or new ulcers in the stomach may develop; gastro-jejunal or jejunal ulcer may subsequently occur.

2. *Excision.*

The operation of excision gave great promise. We are all well aware of the frequency with which the perforation of an ulcer, when treated by suture alone, has resulted in the complete abeyance of all gastric symptoms. The hope was strongly felt that the excision of an ulcer would lead to a speedy and a permanent recovery. But experience made haste to show that our hopes were unsubstantial. After excision a degree of contraction of the stomach occurred which caused a distortion of the organ, and obstruction developed; or the ulcer recurred along the suture line. In 39 cases 15 showed a severe recurrence of trouble and a further operation was needed in 11. I have quite abandoned the method.

3. *Gastro-enterostomy Combined with Excision.*

Gastro-enterostomy combined with excision gave good results in many cases, but not in an adequate number. The method is by no means so satisfactory as Balfour's operation.

4. *Balfour's Operation.*

This consists in the destruction of the ulcer by the actual cautery, and the subsequent performance of gastro-enterostomy. Recently a very substantial plea for the more frequent performance of this method has been published by Balfour. The operation is simple, safe, and satisfactory in respect of after-results so far as the records at present available appear to show. The application of heat to the edges of the excised ulcer is far more effective than the knife in the destruction of cells which are cancerous or in danger of becoming so. Only one operation can be compared with it, gastrectomy; and for reasons I will give later my choice falls upon the latter.

5. *Median Resection of the Stomach.*

Median resection of the stomach has very able advocates. In April of last year I had the good fortune to see this operation exquisitely performed in Rome on two cases, by Alessandro. The clinical results are said to be good, but I have seen a recurrence of symptoms and fresh ulceration along the suture line. The radiological examination of patients submitted to this operation, as Duval has shown, gives reasons for the belief that contraction and stasis in consequence are by no means uncommon.

6. *Gastro-enterostomy Combined with Jejunostomy.*

In some few cases (16 in all my experience), the ulcer is so large, so firmly adherent, or so deeply excavates a viscus, in a patient whose condition is extremely poor, that only a very speedy and simple operation can be tolerated. In such cases I perform gastro-enterostomy in "Y," making the opening into the stomach of very large size. The proximal part of the jejunum, forming the Y, is opened by a small incision, through which a tube is passed downwards into the intestine. Through this tube the patient is fed for such a period as will allow the ulcer to heal. When an X ray examination shows that the ulcer is healed, no crater and no notch being visible, the tube is removed, and the jejunostomy opening is closed. In one case no food was taken by the mouth for three years and nine months.

7. *Gastrectomy.*

This is for me the most satisfactory operation. All other methods fail in one or more particulars in that the quality of the recovery may be poor, the recurrence of symptoms not infrequent, or the mortality high. Gastrectomy has a small mortality, the quality of the recovery is excellent, and the results are as near perfection as they can be. All other operations leave the surgeon haunted by the fear of a recurrence of the ulcer. After gastrectomy I have never yet seen a recurrence of ulceration. Indeed, the after-history is remarkable for its placid excellence. One of the dangers in every case of gastric ulcer is the transition to malignancy. No one doubts that this occurs, though various opinions are expressed as to the frequency of the occurrence. So far as published records tell us, the risk of death from carcinoma of the stomach after the successful performance of gastro-enterostomy for a gastic ulcer (and this has its own mortality) are greater than the risks of gastrectomy. To distinguish a chronic gastric ulcer from carcinoma of the stomach is sometimes impossible for the most expert of surgeons. If such a difficulty is met with in a case treated by gastro-enterostomy, the patient inevitably dies of his disease. If gastrectomy is performed there is a good prospect of cure. The operation itself is now much simplified. When the stomach is freed from the duodenum and along the two curvatures the question to decide is as to the method of attachment of the jejunum to the part of the stomach which remains. Now I join the cut end of the stomach to the jejunum drawn straight across the colon near the splenic flexure from left to right. The proximal part of the jejunum meets the greater curvature of the stomach, and no jejunal loop is left. This reduces the operation to its simplest terms; and to the easiest and speediest performance.

Conclusion.

I have now to add certain figures to the statistics I gave before the British Medical Association in July, 1920. The number of gastrectomies for gastric ulcer I have performed since 1909 is 118. There have been two deaths, a mortality of less than 2 per cent. In one case a secondary operation was necessary on account of the long loop left in the jejunum, when the older method of anastomosis was used. Only one case has since had any symptoms of digestive discomfort. The patient was a young lady from whom I removed the stomach for a chronic ulcer of the lesser curvature, and from whom I removed also a group of tuberculous mesenteric glands. Since the operation intermittent attacks of diarrhœa have occurred with temporary wasting. This is the only unsatisfactory case in the series; in none have there been the development of carcinoma or a return of ulceration. In the same period I have operated upon 651 cases of duodenal ulcer with three deaths.

II.—By Mr. A. J. Walton.

With so short a time at my disposal I propose to make no reference to the extensive literature on this subject, but to confine my remarks entirely to the results in my own experience. The treatment will vary very considerably with the nature of the lesion and it will be simpler therefore to group the conditions under separate headings.

Acute Ulcers and Erosions.

Insufficient attention has been paid to the fact that conditions identical with acute gastritis and gastric erosions may appear in the duodenum. Although from time to time discussion has arisen as to the cause of hyperchlorhydria, no stress has been laid upon the fact that symptoms may arise from the presence of an acute duodenitis or from an acute duodenal ulcer. I am convinced that the symptoms of such a condition are clearly and well defined, and that there should be, provided care is taken in obtaining the history, no difficulty in determining whether a patient is suffering from an acute or chronic lesion. I very much regretted that no attention was paid to this question in the last discussion on the diagnosis of ulcers. I think we may accept it as universally acknowledged that in such an acute lesion, whether it be of the stomach or duodenum, no operative treatment should be undertaken. There may perhaps be a feeling of doubt as to whether, under modern conditions of life, such an acute lesion is really cured medically or whether it ultimately progresses to a chronic ulcer, but even if this be so, operative treatment should certainly be delayed until the chronic process is present. The only possible exception to this rule is that of repeated attacks of severe hæmatemesis. I may say here that my experience absolutely supports that of Dr. Bolton, that every case of severe hæmorrhage in young women is due to a small acute ulcer. I have never yet met with a condition of gastrostasis and I am very doubtful whether it exists. If careful attention is given to the history, there should be no difficulty whatever in making a differential diagnosis between repeated attacks of acute ulceration and the attacks of a chronic ulcer. In other words, operation should not be undertaken in this condition in the belief that a chronic ulcer is present.

The only question is, Does the surgeon believe that hæmorrhage from an acute ulcer can be cured by surgical treatment? My own belief is that it can, but, since in the majority of cases a cure may be brought about by medical means, operation should only be undertaken in a very few cases. I would reserve such a method of treatment for examples of very severe hæmatemesis, which if repeated would almost certainly be fatal, or for severe hæmorrhage which has been repeated at short intervals. As an argument against operation it is often stated that the mortality with medical treatment is very low, while that with surgical treatment is very high. This is, of course, a useless and fallacious statement, for the medical figures refer to all cases of hæmatemesis, while the surgical are based upon the most severe cases, in fact, those which are in extremis, for no surgeon or physician would advocate operative treatment as a routine measure. It is perfectly true that there are a fair number of cases on record where an operation has been undertaken and, since no ulcer has been found, the abdomen has been closed and the patients have recovered—thus showing that they have recovered in spite of the operation rather than because of it—but this does not gainsay the fact that a considerable number of patients have died directly from severe hæmatemesis. Since the loss of blood is due to a minute erosion, it is manifest that no time should be lost in looking for the lesion, which is almost certain not to be found. My own view is that in so severe a case the patient should be anæsthetised, should be given a direct blood transfusion, and the abdomen should then be opened. A posterior gastro-enterostomy should be performed, and since the erosions are small, and frequently at the tundus, the pylorus should be occluded. I have carried out this method of treatment in 13 cases. Of these 9 recovered and 4 died, and since all of them were very grave risks I consider these results satisfactory. Of more importance, however, is the after progress. Several of these cases have had previous attacks of severe hæmorrhage and one of them had had three previous operations, the stomach in every case being untouched. Since operation, which dates back in some cases to eight or nine years, there has been no recurrence of hæmorrhage, although some of the patients have still had the symptoms of ptosis, with which an erosion is so often associated.

Perforated Ulcers.

That an operation should be undertaken in so grave a complication is without question. The only doubt at issue is whether a gastric perforation can occur with an acute ulceration. It has frequently been stated that an acute erosion may perforate, and if this is so, simple suture would manifestly lead to a cure. Such, however, has not been my own experience. I made a careful investigation of 79 cases of perforation which occurred at the London Hospital in the post-mortem department. Seventy-eight of these were proved to

be a chronic ulcer, but in one no note was made as to whether it was acute or chronic. I have also never yet seen an example of a completely healed ulcer where the scar had involved the peritoneal coat, although I have heard of a few such examples. That is to say, that all the cases which have involved the peritoneal coat have failed to heal and have been chronic in nature. My experience strongly supports the view that an ulcer which perforates is always chronic and therefore that suture of the perforation alone is an insufficient form of treatment. Even if this were not true, it is inconceivable that a differential diagnosis could be made at operation. The only distinction that I know of is the amount of fibrosis which is discovered on microscopic section. I believe, therefore, that a gastro-enterostomy should always be performed. There have been so many figures published to show that the mortality is not lowered by this addition that it is unnecessary to quote them in detail. It may be mentioned, however, that in the wonderful series published by Dr. J. B. Deaver, where the mortality is the lowest recorded, the performance of gastro-enterostomy was the rule. If the patient is very ill the surgeon may have to be content with suture of the ulcer and leave the performance of a gastro-enterostomy to a later date. I may say here that I believe there is never the slightest difficulty in suturing the opening. Mattress sutures should be used and should be passed wide of the indurated and œdematous area. In some cases two or three inches of the stomach wall may thereby be invaginated, but as far as I know this never gives rise to any ill-effects. If such be the rule it is never necessary to plug the opening with omentum or other material, the perforation can be firmly and completely closed.

My own figures show that there were 32 gastric perforations with 13 deaths, and 19 duodenal perforations with 5 deaths, a total of 51 cases with a mortality of 35·2 per cent. This is admittedly high, but I have never refused operation even in the most severe cases. Of more importance than these figures are the cases in which trouble has accrued when a gastro-enterostomy has not been performed. I have in my series eight cases where simple suture was elsewhere performed and in whom symptoms have returned since the operation which have demanded further surgical interference. One of the eight sought treatment for a second perforation.

Pyloric and Duodenal Ulcers.

It is generally agreed that this type of ulcer is satisfactorily treated by the performance of a posterior gastro-enterostomy, which, in my experience, has given greater benefit than follows Finney's pyloroplasty. There are, however, two possible objections to such a line of treatment: (1) carcinoma may arise at the seat of the ulcer; (2) the operation may be followed by gastro-jejunal ulceration.

My own experience has shown most clearly that a careful and individual attention to the clinical history will often reveal the presence of very early carcinoma, often indeed before it is visible to the naked eye. I have five such cases where a partial gastrectomy was performed solely on account of a change in the symptoms, and although there was no evidence of growth at operation, a microscopical investigation later revealed the presence of carcinoma. I had hoped that in the previous discussion attention would have been directed to these finer points in the diagnosis, for the short time at my disposal prevents me from entering upon them more fully at this period. If, therefore, the history leaves any doubt as to the nature of the lesion, a partial gastrectomy should always be performed; for my own experience has been similar to that of many other surgeons, that, if a carcinoma does follow after operation, it generally occurs so shortly after that it is almost certain that it was present at the time of the operation.

In my own series of 227 cases, of which 103 were pyloric and 124 duodenal, there was only one which developed carcinoma, and that after a period of four years since operation.

The danger of the onset of gastro-jejunal ulcer is a very real one, and although from time to time one believes that the cause has been discovered, one still finds that all efforts to prevent it are unavailing. Most authorities place the frequency at about 2 per cent. In my own series of 11 cases, there were five in which I performed the first operation myself, and, since nearly all the cases have been very closely followed, I think I may say that these five are the only examples which have occurred in the 227, which agrees with the usual percentage. It is my custom always to embed the ulcer and to occlude the pylorus, in order to prevent the possibility of hæmorrhage or even of perforation of the ulcer in the first few days. It will be seen from my figures, therefore, that my experience has not supported the view that occlusion of the pylorus increases the frequency of gastro-jejunal ulceration.

The question of doubt, therefore, is whether the danger of the onset of a gastro-jejunal ulcer is sufficient to demand the routine performance of a partial gastrectomy. I believe that the mortality of the latter operation is bound to be high and in this respect to outweigh the danger of gastro-jejunal ulcer. Statistics are very difficult to compare, for a surgeon who performs a partial gastrectomy as a routine measure will have a lower mortality owing to the inclusion of all the milder cases, but his mortality for gastro-enterostomy, if it is only performed where partial gastrectomy would be difficult, is likely to be high. Others who, like myself, perform gastro-enterostomy as a routine measure, will have a lower mortality with this operation and a higher mortality for gastrectomy, which is only performed for dangerous or doubtful cases. A possible comparison will be given by combining the two series together and arriving at the total mortality. My own figures show that with uncomplicated cases of pyloric and duodenal ulcer the mortality has been well under 1 per cent., but the value of such selected cases is doubtful, and one should consider together all examples, whether complicated or not, with dilatation, with early carcinoma, with ulcers on the lesser curve, and with severe hæmatemesis. The cases of perforation are considered elsewhere. By this method my figures show that with 218 gastro-enterostomies there were seven deaths, a mortality of 3·2 per cent. Partial gastrectomy was performed nine times with two deaths, a mortality of 22 per cent. The total mortality, therefore, of both groups is 3·9 per cent., and I doubt very much whether a partial gastrectomy, anyhow in my own hands, could give so low a mortality if all the complicated cases were included.

Ulcers on the Lesser Curve and Hour-Glass Stomach.

It is now widely appreciated that an ulcer of the lesser curve of the stomach will not always be cured by gastro-enterostomy. The proportion of cures by this method has been frequently placed between 40 and 60 per cent. My own experience goes even further than this, for I have had three cases where gastro-enterostomy was performed elsewhere for a pyloric ulcer, respectively five, six, and seven years before my advice was sought, and, although the gastro-enterostomy was perfect and the pyloric ulcer was healed, a further ulcer had developed upon the lesser curve. The histories I think made it clear that this ulcer had been a later development and had not been present at the first operation. It would seem, then, that a gastro-enterostomy not only will fail to heal all such ulcers, but will not even prevent their development. Such an operation will, however, often lead to a considerable improvement, so that it is my custom with a very large ulcer not to perform a jejunostomy, which gives a troublesome convalescence, but to perform a gastro-enterostomy with occlusion of the pylorus, and in several cases I have found that after a year or so the symptoms which have been improved recur, but a second operation at that period will reveal an ulcer so much decreased in size that it is usually possible to excise it. This failure of gastro-enterostomy to lead to a cure is not dependent upon the presence

of ptosis. The view has lately been put forward that lesser curve ulcers are more common in women than in men. This has not been my experience. The hour-glass stomach, it is true, is almost wholly limited to women, all of my cases due to a simple ulcer occurring in women, and ptosis was very often present. On the other hand, of the 146 lesser curve ulcers 104 were found in men and only 42 in women.

If, then, a gastro-enterostomy is unsatisfactory, the operation will have to consist either of local treatment of the ulcer, such as excision or cautery excision, which must be combined with gastro-enterostomy to prevent recurrence, or of partial gastrectomy. The choice of these two operations will vary with different surgeons. Excision is more likely to be followed by recurrence or the onset of carcinoma, but a gastro-jejunal ulcer, in my experience, does not occur after an ulcer of this type. A partial gastrectomy, on the other hand, is more likely to have a higher mortality. It is by the careful consideration of these two possibilities that a choice will have to be made, and hence it is probable that there will not be perfect unanimity among different surgeons, for their figures in this respect are liable to vary. One has a relatively low mortality for partial gastrectomy, another for excision.

The danger of recurrence after excision alone is universally agreed to be considerable and therefore this operation should never be performed. If, however, it be combined with posterior gastro-enterostomy and occlusion of the pylorus the danger is very slight, especially if only catgut sutures be used. In my own series of 167 cases there was a local recurrence in two, and I believe that it, in both cases, was due to the fact that sufficient care had not been taken to obtain complete apposition of the posterior layer of the mucosa.

The danger of after-carcinoma is here, as with the pyloric ulcers, slight if a careful history be taken, for not only are the symptoms of this variety of ulcer very definite, but the onset of carcinomatous changes may give a very clear change in the symptoms. If there be a suggestive change in any one of the symptoms a partial gastrectomy will, of course, be the operation of choice. In my own series carcinoma occurred after operation in two cases, in one at the site of the ulcer and in the other at the pylorus. Apart from these dangers the results have been exceptionally good and no other complications have followed. Of the 167 cases, 149 have been treated with excision combined with posterior gastro-enterostomy and pyloric occlusion. Occlusion of the pylorus in all cases was performed by means of a silk mattress suture, which obstructs the passage for about two months only; after which X ray investigation shows that the canal is again opened up and the food passes through. I have for a long time been convinced that a permanent occlusion is unnecessary. It is only required until such time as the ulcer is healed.

In these 149 cases there were three deaths, giving an operative mortality of 2 per cent. Partial gastrectomy, on the other hand, is followed by practically no danger of recurrence or carcinoma, but, as with the case of pyloric ulcer, I believe that the mortality will always be higher. It is my custom only to perform it when there is a doubt as to the presence of carcinoma, or with large adherent ulcers which are difficult to free, so as to allow of a satisfactory excision. It was performed in my series in 20 cases, five of whom died as a result of operation, which gives a high mortality of 22 per cent. The total mortality for both cases grouped together was therefore 167 cases with eight deaths—that is a percentage of 4·8, but it must be remembered that there are included in this list all cases whatever complications may have been present. My personal view is therefore that the operation of choice is one of free excision, which, in my opinion, gives a wider removal than cautery excision, followed by occlusion of the pylorus and posterior gastro-enterostomy. If there be the slightest question as to the presence of carcinoma, or in some difficult adherent cases, a partial gastrectomy should be the operation of choice. I believe that by these means the total mortality will be less than will occur with a routine partial gastrectomy, and will give a higher percentage of satisfactory results even if there be added the small possibility of recurrent ulceration or of the onset of carcinoma.

A CASE OF COMPLETE HEART-BLOCK, WITH POST-MORTEM EXAMINATION.

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THE following case is sufficiently remarkable to merit record. The notes are by Dr. Waldo and the pathological report by Dr. Herapath.

A bachelor of 62 years of age, always of temperate habits, contracted a primary sore 25 to 30 years ago and was treated for some years with mercury by one of the surgeons at the Lock Hospital. He came under my care 10 years ago with what he called a bilious attack with vomiting. There was a well-marked systolic murmur all over the front of the chest with increased cardiac dullness and a rather feeble impulse displaced downwards and outwards; the pulse was 44 to the minute, regular, and not of the Corrigan type. From then onwards he took mercury either by the mouth or by inunction, but has never had intravenous or muscular injections of any kind. Seven years ago he developed a gumma on the back of his wrist, which recurred within six months. The pulse gradually became slower and varied between 33 and 23 to the minute, though the venous pulse in the neck could be counted at 60 to the minute. He had several attacks resembling petit mal, the first two without and later ones with loss of consciousness; he passed urine involuntarily, though he never bit his tongue. During these attacks he was more flushed than pale; he thought they were brought on by mental strain and by hunger. He complained of some shortness of breath, especially when ascending stairs, but had no cardiac pain of any kind. The systolic blood pressure in August, 1918, was 110 mm. Hg. In February, 1920, two of my colleagues, Dr. J. E. Shaw and Dr. F. H. Edgeworth, saw the patient with me, and we agreed on the diagnosis of heart-block with destruction, probably complete, of the auriculo-ventricular bundle. The patient died in October, 1920, in an unconscious attack.

Pathological Report on the Heart by Dr. HERAPATH.[1]

The heart is very large, all chambers being markedly dilated and both ventricles very much hypertrophied. The auriculo-ventricular rings are wide, and the heart increased in length from base to apex. The muscle is fatty and friable. There is atheroma of the ascending portion of the aorta. The coronary arteries are somewhat occluded and much thickened wherever cut across. The right surface of the auricular septum is hard and glistens as though it were more fibrous than usual. The following blocks were cut out for microscopic examination: (1) A portion of the right auricle to include the sinu-auricular node; (2) a portion of the septum including the mouth of the coronary sinus and the whole length of the bundle of His; (3) a small portion of the apex and base of each ventricle; (4) portions of the right and left auricular appendices.

Right Auricular Block.—The node area small and surrounded by more fat than is usual; node itself narrow and elongated as though pulled out. Marked increase of fibrous tissue in the node, extending into

[1] This examination was made in the course of a research under a grant from the Colston Research Fund.

FIG. 1.

Intraventricular septum (low-power objective). 1, Auricular muscle; 2, fibrous tissue; 3, remains of the bundle; 4, ventricular muscle; 5, artery to the bundle; 6, left branch of bundle; 7, tricuspid valve.

FIG. 2.

Intraventricular septum (high-power objective). 1, Remnants of cardiac muscle; 2, fibrosed left branch of the bundle; 3, ventricular muscle; 4, remains of bundle; 5, fibrous tissue; 6, artery to the bundle, much thickened.

all its main branches; the artery to the node much thickened; muscle of right auricle fibrotic, the small vessels thickened; there are small areas of perivascular lymphocytosis. Some thickening of endocardium.

Septal Block.—Lower part of auricular septum taken out and cut vertically from coronary sinus side backwards; each section 15μ thick, and every tenth section was mounted. Sub-endocardial fibrosis on both sides of inter-auricular septum reaching on the right from level of mouth of coronary sinus to base of tricuspid valve; on left fibrosis includes lower fibres of left auricular muscle where they are inserted into the central fibrous body. Muscle passing down into base of tricuspid valve also replaced by fibrous tissue. Central fibrous body much elongated and appears to have been pulled out. It extends much higher than usual and, to a large extent, has been replaced by newly-formed fibrous tissue; at several points active lymphocytosis is going on. Lower part of inter-auricular septum contains a large amount of fat which appears to have replaced the bundles of muscle usually met with in this area; a thin layer of muscle passing down on each side of the septum just below the thickened and fibrosed endocardium. In this pad of fat are a few fibrosed strands of muscle fibres—all that remains of the tangle of muscle fibres, constituting the *a.-v.* node, and normally found just below the mouth of the coronary sinus. Traced backwards through the series of sections, this pad of fat pierces the central fibrous body in the same way and in the same place as the "bundle," and certainly represents all that is left of the bundle of His. Vessels accompany it; one, a well-marked artery, is the artery to the bundle and is much thickened, chiefly from proliferation of the intima. Tracing on through the series it breaks off from the auricular side and comes to lie wholly inside the central fibrous body, and later dividing into two branches; one passing down the left surface of the inter-ventricular septum just beneath the endocardium, the other passing down between the bundles of ventricular muscle on the right side of septum in the positions, that is to say, usually occupied by the main branches of the *a.-v.* bundle. A few fibres still recognisable as cardiac muscle can be found in the bundle, but no muscular connexion traceable from the bundle into either of its branches, the upper part of the branches being composed of fibrous tissue; lower down in these branches healthy fibres begin to appear, and still lower they are quite normal. (Figs. 1 and 2.)

Apical and Basal Blocks from each Ventricle.—All healthy, except block from base of left ventricle, which showed marked thickening of coronary artery which was almost occluded.

Right and Left Auricular Appendices.—Nothing abnormal found.

Remarks.

In the absence of tracings the case was diagnosed as one of syphilitic heart-block. Post mortem, complete destruction of the bundle of His was found; the junctional tissues had been picked out for attack and the damage was almost confined to this area, the whole bundle being destroyed, even to the upper part of its two main branches. The heart had evidently been contracting for some years with no connecting link between the auricles and ventricles; in other words, the stimulus for the ventricular contractions had been arising from some part of the bundle, and the rhythm was what is termed the idioventricular rhythm. Cessation of ventricular action occurred because the fibrosis finally cut the ventricles off from this last stimulus-producing area, and no further stimulus for contraction could reach the ventricular muscle.

AN ITALIAN CONGRESS OF MEDICAL RADIOLOGY.—The fourth Italian Congress of Medical Radiology (general secretary, Prof. Mario Ponzio, Ospedale Mauriziano, Turin) will take place in Bologna on May 9th, 10th, and 11th next, in the Orthopædic Institute, Rizzoli, under the presidency of Prof. Aristide Busi. Annexed to the Congress an exhibition of radiological apparatus will be held, in which foreign as well as Italian firms can participate. Information can be obtained from Dr. Alberto Possati, Villa Verde, Bologna, secretary of the Congress.

THE NOMOGRAM

AS A MEANS OF CALCULATING THE SURFACE AREA OF THE LIVING HUMAN BODY.

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AND
A. J. V. UMANSKI, M.SC. LEEDS.

THE importance of a knowledge of the surface area of the body in all human metabolism experiments is realised by every physiologist. Since Meeh propounded his formula $S = K\sqrt[3]{W^2}$, where S is the surface in square centimetres, W the weight in kilograms, and K a constant, a number of other investigators proposed different kinds of formulæ which claim to reduce the 15 per cent. error given by Meeh's equation. The formula proposed by D. and E. F. Du Bois—viz., $71{\cdot}84\ W^{0{\cdot}425}\ .\ H^{0{\cdot}725}$—is claimed to give an average error of not more than ±1·5 per cent. Messrs. Du Bois have constructed a chart familiar to physiologists[1] which renders this complicated formula easy of application. It occurred to us, however, that the nomographic method now so extensively used by engineers would afford a readier reading of results than the Du Bois curves.

The characteristic feature of a "nomogram" or alignment chart is that we have three lines which are graduated with scales representing three different variables, so that any straight line cutting these three scales will intersect them at three points in such a way that the graduations read off at these points will satisfy a given relationship between the three variables. Thus, if the dotted line A, B, C, (Fig. 1) cuts the three scales graduated with the three variables a, b, c, the values of these variables at the points A, B, C, will satisfy the particular relation between the variables for which the chart has been constructed.

[1] See Arch. Int. Med., 1916, xvii., p. 865.

FIG. 1.

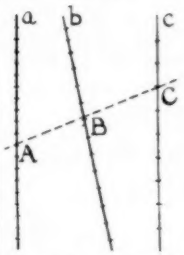
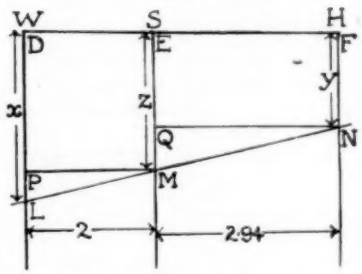


Diagram of alignment chart or nomogram.

FIG. 2.



Illustrating the process of graduation.

The formula $S = 71{\cdot}84\ W^{0{\cdot}425}\ .\ H^{0{\cdot}725}$ may be treated in the following manner.

Taking logarithms of both sides we have—

$$\log. S - \log. 71{\cdot}84 = 0{\cdot}425 \log. W + 0{\cdot}725 \log. H \quad . . \text{(i)}$$

Now take three parallel lines on which we will construct scales for W, S, H (Fig. 2), and take the distance between the W and S scales as 2 in., and between S and H as 2·94 in. Let any line cut these scales at L, M, N, so that the distances LD, ME, NF along the scales W, S, H, as measured from the base line DEF, are equal to x, z, y respectively. By drawing MP and NQ parallel to the base line DEF, we have in the similar triangles LPM, MQN,

$$\frac{LP}{MQ} = \frac{PM}{QN} \text{ or } \frac{x-z}{z-y} = \frac{2}{2{\cdot}94} = \frac{1}{1{\cdot}47}$$

$$\therefore\ 1{\cdot}47\,z + y = 2{\cdot}47\,z \quad . . . . \text{(ii)}$$

Now from equation (i)—

$$0{\cdot}425 \log. W + 0{\cdot}725 \log. H = \log. S - \log. 71{\cdot}84$$

or $5{\cdot}87 \log. W + 10 \log. H = 13{\cdot}8\ (\log. S - \log. 71{\cdot}84)$.

This will satisfy equation (ii) if we take

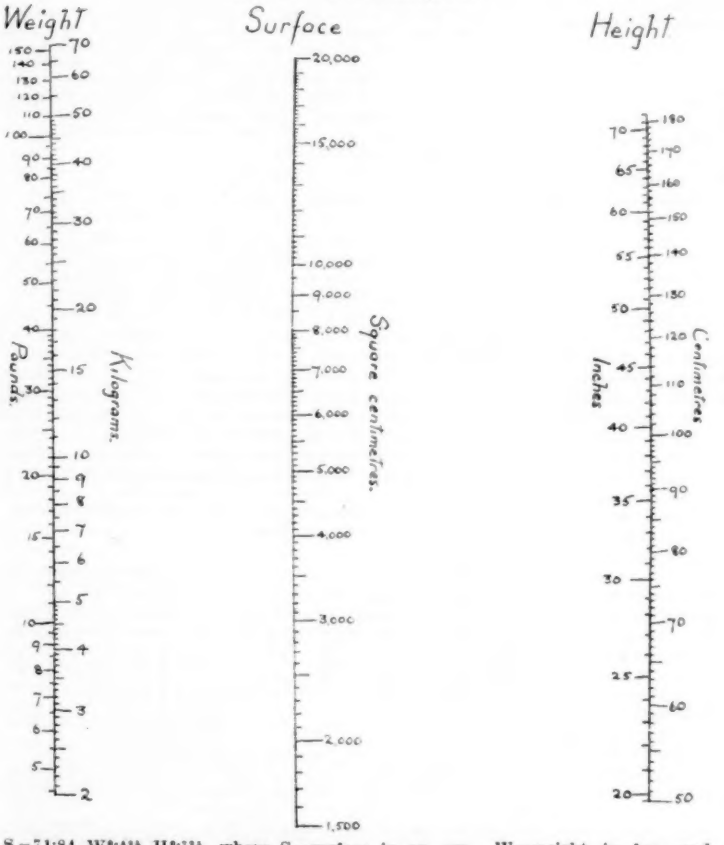
$$x = 4 \log. W\ ;\ y = 10 \log. H\ ;$$

and $z = \frac{13{\cdot}8}{2{\cdot}47}\ (\log. S - \log. 71{\cdot}84)$.

Therefore, if we graduate the scales with these equations we shall have a nomogram for the formula required (Fig. 3).

The process of graduation of the scales $x = 4 \log. W$, for instance, means that the distance of any graduation W from the origin D is equal to 4 × (the logarithm of the graduation of the point). Thus the point W = 10 will be at a distance from the origin of 4 log. 10 = 4 in. The scale S is graduated regardless of the constant term, which is taken into account by fixing a point in the scale by calculating a value of S from the formula $S = 71{\cdot}84\ W^{0{\cdot}425}\ H^{0{\cdot}725}$ for values of, say, W = 4 and H = 60, which gives S = 2520. A line joining these scales of W and H will, therefore, meet the scale at

FIG. 3.—*The Nomogram.*



$S = 71{\cdot}84\ W^{0{\cdot}425}\ H^{0{\cdot}725}$, where S = surface in sq. cm., W = weight in kg. and H = height in cm. A straight line joining given values of W and H cuts the middle scale at the correct value of S. Thus a line joining the points 24 on the weight scale, with the point 110 on the height scale, will cut the surface scale at a point corresponding to 8375, which means that the surface area of a person 24 kilograms in weight and 110 cm. in height is 8375 sq. cm.

a point which should be marked 2520. Once this point is fixed the scale may be easily completed by calculating scales of the distances, from z = 13·8 log. S. The W and H scales are also shown graduated on the other side with British units to avoid the necessity of conversion to metric units.

A PRECIPITATION TEST FOR SYPHILIS.

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As the outcome of extensive experiments conducted by various workers—notably by the Medical Research Council—it is now generally acknowledged that the complement fixation test for syphilis, commonly known as the Wassermann reaction (W.R.), is practically diagnostic, and the discrepant results which have occasionally been reported do not undermine, but only tend to establish, the validity of the reaction. The serious drawback, however, to the test is its complicated technique, for it involves the use of a number of reagents, each of which has to be carefully standardised beforehand, some having to be freshly prepared for each test. With a view to overcoming this disadvantage various modifications of the test have been introduced. Thus, instead of using the guinea-pig serum to furnish the complement in the hæmolytic system, the natural complement present in the tested serum is utilised, as in Stern's[1] and in Wang's [2] tests. Another direction in the modification is to engage for the hæmolytic system, besides the complement contained in the unheated patient's serum, a suspension of human blood cells sensitised with the corresponding hæmolytic amboceptor, as in Birt's [3] and in Emery's[4] tests. In the methods devised by Hecht[5] and by Fleming [6] the line of modification lies in the use of the complement and of the natural hæmolytic amboceptor for sheep corpuscles in the tested serum. It will be seen that these modifications are all based on the phenomenon of deflection of complement, and as such, apart from the question of their individual merits, none can be said to be entirely free from the difficulties attending the W.R. technique.

As distinct from these modifications, various physico-chemical methods for the detection of the disease have been formulated, amongst which may be mentioned the Klausner distilled water test, Fornet ring test, Porges-Meier reaction with bile salt,[7] McDonagh "gel" test, and Sachs-Georgi test.[8] With the probable exception of the last, to which reference will be made later, none of these tests have been found sufficiently reliable to admit of general application, and therefore cannot be used to supplant the W.R. Considering the increasing demand made on the laboratory for the diagnosis of syphilis—a diagnosis carried out by a technique based on Bordet's phenomenon of complement deviation—it is evident that what is wanted is a test uncomplicated by the procedure of the complement fixation methods and giving results which will compare favourably with W.R. results. With this aim in view I began a series of experiments in 1918 at the Laboratory of the Royal College of Physicians, Edinburgh, directing my observation chiefly towards the preparation of an antigen which, acting alone, would give with a luetic serum a precipitation detectable by the unaided eye. For various reasons this work was interrupted, to be taken up later at this University. The following communication deals with results thus far obtained, and in it are embodied, for the sake of strict comparison, only the findings arrived at since resumption of the work.

Technique of Test.

Preparation of Antigen.—The antigen used is that of an alcoholic extract of the human heart. The organ is freed from fat and finely minced. To each 10 g. of the minced muscle 30 c.cm. of 96 per cent. absolute alcohol is added. The mixture is left at room temperature for three days shaken occasionally during the interval. It is filtered through cotton wool and stored in the cold. This extract will keep for many months. For use, one part by volume of the extract is added to nine parts of physiological saline in the following manner: 9 c.cm. saline is put into a tube measuring 6 in. by ¾ in. The extract is slowly delivered along the side of the tube, so that it will float on the saline. The tube is allowed to stand upright for a quarter of an hour, then held at an angle of about 45° and turned in such a way that each turn moves through a half circle in roughly a second. Between each turn is given a two-second rest. At the end of five minutes, if the mixing is properly effected, the supernatant layer of alcoholic extract will have become turbid throughout, leaving the saline below clear. The tube is now held in an almost horizontal position and rotated as before. This rotation is continued for 10 minutes, when the mixture will assume a more or less uniform turbidity, and after shaking is ready for use. If kept in the cold it will retain its potency for at least a week. If a larger or smaller quantity of antigen than that above indicated is prepared, the calibre of tube used should vary accordingly.

Tested Serum.—On the day of the test the serum is inactivated for from 10 to 15 minutes at 55°C. If the amount of serum available is small it should be diluted previous to heating with a known quantity of saline.

Procedure of Test.—Two tubes (3 in. by ¼ in.) are put up for each serum. To one measure 10 drops of saline delivered from a Wright's pipette and to the other four drops. Using the same pipette, place two drops of serum in the first tube, and after mixing transfer four drops of this dilution to the second tube. Each tube now receives eight drops of the antigen, which puts the dilution to 1 in 12 and 1 in 24 respectively. Mix, and incubate tubes at 37° C. for 16 to 20 hours. Before reading is taken the tubes should be gently shaken up by swinging or inverting several times. The results are recorded −, ?, +, ++, indicating, respectively, negative, doubtful, weakly positive, and strongly positive. A negative serum is denoted by absence of distinct precipitation in both tubes, a few flakes floating in the fluid being discounted. A positive serum is signified by a distinct precipitation in one or both tubes. The precipitate is fine, though clearly visible to the naked eye, and more or less uniformly granular. On first shaking it rises from the bottom of the tube. A strong positive is one in which there is, besides precipitation, an almost complete clearing of the emulsion in both tubes, and a weak one by a partial clearing. Doubtful reactions are those which show a questionable precipitation.

Results.

The number of different serums tested by this method was 200, and in every instance a W.R. following closely Harrison's technique was concurrently performed. The material was obtained from the Government Bacteriological Institute, the Government Civil Hospital, the Tung Wah Hospital, the Ho Miu Ling Hospital, and from other sources. In the W.R. test four tubes were employed for each serum. A cholesterolised heart antigen, as advocated by Fildes and McIntosh,[9] was used in the test; a deviation of eight or more doses of complement over that in the control being accepted as strongly positive (++); a deviation of from five to eight as weakly positive (+); that between three to five as doubtful (?), and under three as negative (−). The results are summarised in Table I.

TABLE I.—*Comparison of W.R. and Sedimentation Tests.*

Source of material.	Total No.	W.R. test.				Sedimentation test.			
		++	+	?	—	++	+	?	—
G.B.I.	85	15	3	2(*a*)	65	16	4	1(*b*)	64
G.C.H.	5	4	—	—	1	4	—	—	1
T.W.H. ..	47	25	1	—	21(*c*)	27	2	—	18
H.M.L.H. ..	14	3	—	—	11	3	—	—	11
Other sources	49	21	1	1(*d*)	26(*e*)	21	3	—	25
Total	200	68	5	3	124	71	9	1	119

(*a*) Both were + to sedimentation test; (*b*) negative to W.R.; (*c*) two were ++ and one + to sedimentation test; (*d*) negative to sedimentation test; (*e*) one + to sedimentation test.

It will be seen that the results of the two reactions show a very close agreement with each other; thus, out of the 200 separate cases examined, in 192 (96 per cent.) the reactions were parallel, consisting of 73 positives and 119 negatives. The specimens which

gave discrepant results totalled eight. These consisted of three treated cases, three active and latent cases, and two other cases giving no history. (See Table II.)

TABLE II.—*Particulars of Eight Discrepant Cases.*

—	Serial No.	W.R. test.	Sedimentation test.
Treated cases ..	31	negative.	Doubtful.
	65	,,	Strongly +
	126	,,	weakly +
Active and latent cases	29	Doubtful.	,, +
	60	,,	,, +
	182	Negative.	Strongly +
Unknown cases ..	53	,,	Weakly +
	162	Doubtful.	Negative

Discussion of Results.

Here I shall confine my discussion to recognised facts and to certain points which my experiments tend to establish. It is now conceded that excluding certain diseases, such as scarlet fever, typhoid, leprosy, and possibly malaria, a positive W.R. signifies the presence in the system of a syphilitic infection. On the other hand, a negative reaction can by no means be generally accepted as implying the absence of the disease, since a number of syphilitic cases, in their early or late manifestations, fail to give the reaction. These limitations in the application of the W.R. also obtain in other serological tests, and though the reaction is not strictly speaking specific, we find in it a means of diagnosis superior in importance and in clinical value to any other tests yet advanced. In estimating the merit of a method attempted to replace the complex W.R. the criterion is that the simplicity of the technique aimed at must not be introduced at the expense of accuracy, as compared with the W.R. The important elements underlying the principle of precipitation, such as that concerned in the test here described, are the tested serum, the antigen, and the time and temperature allowed for the interaction, and on the state of presentation of these factors depends the behaviour of the reaction. There can be little doubt that the W.R. is of a colloidal nature, depending on the precipitation of the globulin fraction present in excess in the luetic serum by an hydrophilic colloid, such as a lipoidal substance extracted from the organs, resulting in the adsorption of complement. Closely related or analogous to this reaction is the phenomenon of precipitation, which depends on changes in surface and solution tension, and therefore obeys the same laws as other similar physical phenomena.

Serum.—I find that to heat the serum beforehand is essential for the elicitation of the precipitation test. Fresh unheated luetic serums practically invariably fail to respond to the reaction or give a less marked flocculation in any dilution than the same serums after inactivation by heat. The optimum period of heating necessary for the abolition of this inhibition is 10 to 15 minutes at 55° C., longer heating tending to diminish the reaction. This inhibition cannot be due to the presence of precipitinoid, resulting from the destruction of the precipitating group of the precipitin with the combining group unaffected, for here it is observed not with heated but with unheated serum. It is further interesting to note that this inhibition removable by heat is restored by adding fresh, though not heated, guinea-pig serum; this fact indicates that the interference of the reaction in using an unheated serum is due to the presence of a thermolabile substance, probably complement, in the tested serum. (See Table III.)

No explanation of this phenomenon can at present be offered, but it is not improbable that the complement native to the fresh serum, or introduced from without, in the presence of an antigen with its corresponding antibody would have linked on at the first to the haptophore group of the latter substance during the period of incubation as happened in the W.R., and thus prevented its precipitating group from acting subsequently; or, as seems to be equally likely, the complement might have exerted a lytic action on the precipitate before this aggregated to the size detectable by the naked eye. Further experiments are required to determine this point. It is suggested, but no convincing proof has been put forward, that the adsorption of complement in the W.R. test is due to the

TABLE III.—*Sedimentation Test with Six Consecutive W.R. Positive Serums.*

Serial No.	After heating for 10 minutes at 55° C.		Unheated.
	No further treatment.	5 M.H.D. guinea-pig complement added.	
101	+ +	—	—
105	+ +	—	—
127	+ +	?	—
128	+ +	+ +	—
130	+ +	+	—
131	+ +	—	—

formation of an invisible precipitate (precipitin + precipitinogen), and that, as the same physical conditions are involved in the adsorption and precipitation tests, the two reactions are fundamentally one and the same (Sachs-Georgi).

Temperature and Time of Incubation.—My experiments show that with the antigen prepared as described above, a reading taken after an incubation of from 16 to 20 hours at 37° C. will elicit a reaction more uniform and reliable than that yielded at other time and temperature. Longer incubation (say over 40 hours) tends to give a non-specific reaction, shorter incubation a result in which some positives are missed or a reading which is less clear. Room temperature incubation, unless prolonged, gives a uniformly less distinct reading.

Antigen.—The precipitation reaction being of a colloidal nature depends for its production on surface condensation and electrical absorption, and is therefore best elicited when the antigen is presented in a colloidal state. Now surface condensation is governed by the area of surface contact—the smaller the particle in the dispersion medium the greater the surface of contact, and consequently the greater the physical force. As has been demonstrated by Gibbs, a system always tends to assume that form in which free surface energy is at a minimum, so any dissolved substances which lower surface-tension will become accumulated in the surface film. This condensation of substances at the interface has its characteristic in the relation to surface of contact, and the process of concentration on that surface is what we know as adsorption. Although the true nature of the phenomenon of precipitation cannot as yet be said to be fully understood, various explanations of it having been given, the theory advanced by Bordet probably best satisfies the two conditions underlying this phenomenon—namely, the adsorption of the agglutinin by the agglutinogen and the actual precipitation of this new complex by electrolytes. It is often known as the "two-phase" theory. Colloids are unstable, and the suspended particles with which they are built up are only kept in equilibrium by the two opposing forces of electrical repulsion and surface tension, the former preventing their mutual approximation, the latter striving to reduce their free surface to a minimum by bringing the coalescence of small particles to form larger ones. This equilibrium may be disturbed both by electrolytes and by other colloids. According to Bordet's theory, precipitation is a phenomenon of molecular physics—in the first instance the precipitin acting on the precipitinogen alters its colloidal stability, followed in the second phase by actual precipitation of this new compound by an electrolyte. Different in degree, though not in kind, from the properties of colloids are those of ordinary suspension and solution. The former is a coarsely heterogeneous system in which the dispersoids (particles) are of large size. It is characterised by a small surface of contact as compared with a colloidal solution, and a less tendency to adsorption. On the other hand, when the subdivision of the particles becomes greater and they are converted into small

molecules or ions the phenomenon due to surface development becomes suppressed, and the fluid will manifest properties characteristic of true solution. Hence it is the size of the dispersoid in a dispersion medium and the degree of dispersion which in fact determine the nature of a fluid—whether a suspension, a colloidal solution, or a crystalloidal solution. As already stated, precipitation is of a physico-chemical nature, and the efficiency of an antigen is determined by the extent of its colloidal capacity. While there are no broad distinctions to be drawn between the members of the series, colloids differ from the rest in that they are more readily precipitated by other colloids and by electrolytes. It has been demonstrated that a substance may be either colloid or crystalloid, the form it assumes depending upon treatment. Thus, the production of a colloidal solution in saline from an alcoholic extract solution of lipoids will depend greatly on the manner in which the extract and saline are mixed—whether slowly or rapidly by shaking. In the former case a suspension or a colloidal solution is formed, in the latter almost a true solution. This is shown by an experiment (the result of which is given in Table IV.), in which an alcoholic extract of the human heart prepared in the way described above is mixed with saline: (*a*) by first floating the extract on saline overnight, followed by shaking (here the resulting fluid is practically a suspension, evidenced by the fact that the suspended particles are large, visible to the naked eye, and readily separate out); (*b*) by mixing gradually in the way indicated under description of technique (this yields a mixture showing the characteristics of a colloid; and (*c*) by immediate shaking (the mixture thus formed is almost a true solution, being practically clear, and showing in this instance that the dispersoids are of minute molecular size).

TABLE IV.—*Preparation of Antigen.*

(*a*) Slow mixing, a suspension; (*b*) gradual mixing, a colloid; (*c*) immediate mixing, a solution.

Serial No.	W.R.	(*a*)	(*b*)	(*c*)
127	Positive serum.	+ +	+ +	—
128	,, ,,	+ +	+ +	?
129	Negative ,,	+ +	—	—
130	Positive ,,	+ +	+ +	—
131	,, ,,	+ +	+ +	—
132	Negative ,,	+ +	—	—

Reading was taken after interaction for 18 hours at 37°C. between serums and antigens. + +, ?, —, indicate, respectively, much precipitation, doubtful, and no precipitation.

The experiment shows that if, on one hand, the mixing of the extract and saline is effected immediately, the antigenic property of the fluid is practically nil; and if, on the other hand, it is done too slowly spontaneous precipitation will take place. For the preparation of a satisfactory antigen in this respect the manner in which the two ingredients are mixed is therefore of great importance. Sachs and Georgi have prepared an antigen for detecting syphilitic infection by a precipitation test. With their antigen they have examined 2770 serums, and obtained a parallel result with the W.R. in 94·9 per cent. of the cases. The antigen used by them is prepared as follows: An extract with 96 per cent. alcohol of the bullock's heart is made, and put up at the strength of 1 g. of the muscle to 15 c.cm. of the alcohol. To this extract a 1 per cent. alcoholic cholesterol is added, in the proportion of 300 c.cm. of the former to 13 c.cm. of the latter. For use, one volume of this cholesterolised extract is at first rapidly mixed with one volume of physiological saline, and then more slowly with four volumes of the saline. The resulting mixture may, in my experience, be either turbid or opalescent, the degree of opacity depending on the speed at which the cholesterolised extract and saline are mixed.

Using this sedimentation method of Sachs and Georgi Nathan and Weichbrodt [10] have tested 1280 serums and found an agreement with the W.R. in 93 per cent. of the cases. Logan,[11] amongst others, however, considers, and with him I agree, that with Sachs-Georgi cholesterolised heart antigen the precipitation is so fine that a sharp end-result is often not obtained; consequently a personal element is liable to be introduced in recording a reading. It will be seen that no great emphasis is laid by Sachs and Georgi on the care with which the ingredients are mixed, and the maximum turbidity aimed at in their antigen is brought about, not by a slow interaction between the heart extract and saline, but by the addition of cholesterol.

Conclusions.

1. The test has been practised on 200 serums, and was controlled throughout by the W.R. In 192 cases (96 per cent.) a parallel result was obtained with the two tests. Discrepant results were found in eight instances, which consisted of three treated cases, three cases with a definite sign or history of syphilis, and two unknown.

2. All the positive W.R. serums, numbering 73, were found to yield also a positive reaction with the precipitation test.

3. Of the 124 negative W.R. serums, 119 were negative, 4 were positive, and 1 was doubtful to the sedimentation test. The four serums which reacted positively to the sedimentation test but negatively to the W.R. were obtained in two instances from treated cases, in one instance from a case showing active manifestation of syphilis, and from one unknown.

4. The three doubtful W.R. serums gave in two instances a positive, in the third a negative precipitation test. The former belonged to a treated and a latent case.

For courtesy in supplying me with the bloods I wish to record my indebtedness to Dr. H. H. Scott of the Government Bacteriological Institute, Dr. G. H. Thomas of the Tung Wah Hospital, and Dr. T. C. Wong of the Ho Miu Ling Hospital.

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A CASE OF

PERFORATED GASTRIC ULCER

WITH UNUSUAL SYMPTOMS AND SEQUELÆ.

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AND

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THE following case presents unusual features and may deserve record.

Past History.—The patient, C., male, aged 58, had had pneumonia on four occasions, periodic attacks of vomiting for last 20 years, no hæmatemesis, intervals of complete freedom from gastric symptoms of one or two months' duration, and attacks at more frequent intervals of recent years.

Present Illness.—On the evening of June 1st, 1921, after a very long walk, he had a sharp attack of epigastric pain and severe vomiting set in and continued for 36 hours. On June 3rd he was examined by one of us (E. G. D. M.) at the surgery. There was no abdominal rigidity and no obliteration of liver dullness, but slight epigastric tenderness. Temperature 97·8° F., pulse 72, urine normal. He was sent back to bed and given albumin water only. At 5.30 P.M. he took a dose of a mixture containing bismuth-pepsin and morphia, and at 6 P.M. he had a violent attack of abdominal pain which was referred from the epigastrium to the tip of the penis. There was no erection of the penis; he desired to micturate but could not do so. At 7 P.M. another severe attack of epigastric pain following

administration of 2 oz. of albumin water was also referred to the penis. He was shouting with pain, and holding on to the penis. Marked opisthotonos was present.

The abdomen was "board-like" with no distension and no dullness in flanks and no obliteration of liver dullness. Heart normal; signs of chronic bronchitis and emphysema in lungs. Inject. morph. hyp., gr. 1/8th, quickly relieved the pain. Vomiting continued. Urine was passed naturally, no hæmaturia. Temp. 97·8°, pulse 80. At 10 P.M., condition unaltered, temp. 97·8°, pulse 90; diagnosis, ? perforated gastric ulcer.

Operation.—Under closed ether the abdomen was opened by a right paramedian supra-umbilical incision. A little free fluid was found but no gas, and there was some local peritonitis below the liver and around the pyloric region. On the anterior wall of the pylorus was a large chronic ulcer, one and a half inches in diameter, with a pinhole perforation in its centre. The ulcer was overlapped by an enlarged liver and the perforation was evidently due to the giving way of adhesions between the liver and stomach. Considerable induration was present for some distance around the ulcer. The ulcer was invaginated by a row of Lembert's sutures reinforced by an omental graft, and the abdominal wall was closed.

Subsequent History.—June 4th: Condition satisfactory; no vomiting; temp. 100°, pulse 110; saline and glucose given per rectum, four-hourly, and sips of iced water by mouth. June 5th: Condition still good. "Coffee-ground" vomiting once after a feed of Benger's food. Food by mouth stopped. The next morning copious and persistent coffee-ground vomiting. Good result from enema. Saline, per rectum, continued. Temp. 98·8°, pulse 112 per minute. On the 7th stomach much dilated with visible peristalsis. Lower border of stomach midway between umbilicus and symphysis pubis. Signs of broncho-pneumonia, much rusty sputum, septic ulcers on pharyngeal walls. Large quantity of coffee-ground material withdrawn by stomach-tube.

Diagnosis of Post-operative Condition: (1) Pyloric obstruction, the result of invagination; or (2) acute atonic dilatation of the stomach.

Treatment.—Gastric lavage, twice daily. Inject. pituitrin hyp., 1 c.cm. bis; saline and glucose per rectum. From time of commencing lavage, vomiting ceased. With each gastric lavage, less and less distension of the stomach was evident. Signs of broncho-pneumonia, much sputum, and symptoms of cardiac failure present from June 7th to 13th, after which date recovery was uninterrupted. Stomach washed out for last time on the 10th.

Present Condition (November, 1921).—Patient's general health excellent. Still some signs of chronic bronchitis. Digestion said to be better than for years. Only symptom now complained of apparently due to cardio-spasm. At beginning of certain meals food seems to lodge in œsophagus. On swallowing some fluid, this first portion of food returns; then, as a rule, the meal is taken normally and without any subsequent discomfort or vomiting.

The following are the unusual features of this case: 1. The gradual onset of acute symptoms due apparently to a minute leak from the stomach. 2. The severe attacks of pain, apparently of sympathetic origin, referred to the penis, with inability to pass water, and accompanied by opisthotonos. 3. The marked post-operative acute dilatation of the stomach, with persistent vomiting, which was instantly relieved by gastric lavage. 4. The occasional attacks of cardio-spasm at the present time.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

THE TREATMENT OF GASTRIC ULCER.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 2nd, when Dr. G. NEWTON PITT, the President, presided.[1]

Two Great Difficulties.

Sir WILLIAM HALE-WHITE said that the treatment of gastric ulcer laboured under two great preliminary difficulties. The first was diagnosis: for disease of the teeth and gums, gastrostaxis, appendicitis, cholecystitis, stone in the kidney, duodenal ulcer, carcinoma of the stomach, and various functional dyspepsias had been not infrequently mistaken for gastric ulcer. Statistics as to the results of medical treatment could therefore not be considered reliable. Absolute proof of the presence of an ulcer could be obtained by means of the X rays; and a further X ray examination of a series of these proved cases six months after treatment would be valuable as evidence of cure.

The second difficulty arose from our ignorance of the causation of gastric ulcer. There was strong evidence in favour of the belief that infection from elsewhere was the common cause—e.g., disease of the mouth, appendix, gall-bladder, &c. But the only ulcers whose cause was definitely known were the rare forms due to tubercle or syphilis. Nevertheless treatment should be directed in the first instance against any discoverable toxic focus. The physician was encouraged to treat gastric ulcer himself by the fact that ulcers tend naturally to heal. The acute ulcer common in young women occasionally perforated, but generally healed completely. The chronic ulcer, commoner in men between 30 to 40 years, did not heal so readily.

Medical Treatment of Acute and Chronic Types.

Acute Type.—This rarely revealed itself on X ray examination, yet many patients should be treated on the assumption of its presence. Rest in bed upon a diet of milk and eggs (seven and a half fluid ounces of milk with two eggs to the pint every two waking hours) combined with a little olive oil and the exhibition of full doses of sodium bicarbonate and moderate doses of tincture of belladonna, together with some bismuth, was generally curative. The diet he prescribed provided ample nourishment; this was important, since starvation (or rectal feeding) meant delayed healing of the ulcer. The return to normal diet after four to five weeks of this treatment should be gradual.

Chronic Type.—Treatment of the second type was not so invariably successful and a number of cases eventually had to undergo surgical intervention. Medical treatment upon the lines already described should be prolonged for many weeks, but surgery was indicated if this failed, if the case relapsed, in the presence of pyloric stenosis, hour-glass stomach, or repeated and severe hæmorrhage. It was noteworthy that a larger proportion of hospital than of private patients underwent operation. This was largely due to the difficulty of dieting and prolonged rest amongst the former.

Hæmorrhage.—As regards hæmorrhage from acute ulcer, surgery was contra-indicated since it could nearly always be dealt with by medical means amongst which morphia and two grains of calcium chloride as an intramuscular injection were the most valuable.

Where syphilis was present anti-syphilitic treatment should be combined with the ordinary dietetic treatment.

Sir BERKELEY MOYNIHAN'S contribution to the discussion will be found on p. 267 of the present issue of THE LANCET.

Details of Medical Treatment.

In the absence of Sir WILLIAM WILLCOX, his paper was read by Dr. H. L. TIDY. He said that no exact rules could be laid down for treatment since each case would present individual peculiarities, but, in general, medical treatment should be given except in cases of perforation or of almost complete pyloric obstruction, for which immediate surgical measures were imperative. The treatment advocated by Sir William Willcox for early cases consisted in complete rest in bed and regular feeding every two hours with 6 oz. of citrated milk with 20 gr. of bicarbonate of soda. Search should be made in every case for a septic focus. Oral sepsis

[1] We regret that the name of Sir William Hale-White was erroneously given in our report last week as presiding over the discussion on the Diagnosis of Gastric Ulcer, to which this is a sequel. Dr. Pitt was in the chair at both meetings.—ED. L.

was very frequently associated with the gastric lesion, and even where the teeth and gums were apparently healthy apical dental infection could often be demonstrated by X ray examination. Such teeth should be extracted and bacteriologically examined, since in many cases streptococci, not normal inhabitants of the healthy mouth, could be grown. Similar organisms could often be recovered from the intestine, and a combined vaccine of streptococci from the mouth and intestine could be advantageously employed in some cases. When the mouth had been set in order and colon irrigations carried out for a few days, the patient was put on Lenhartz's diet and a mixture containing bismuth carb. 20 gr., mag. carb. 20 gr., sod. bicarb. 40 gr., given one hour after food. Five to ten minims of glycerine of carbolic acid might be added for its antiseptic properties, and tincture of belladonna in 5-minim doses was useful where hypersecretion existed. To be effective the dosage of alkali should be large. If this treatment failed, as it was apt to do in old-standing cases, or should symptoms recur after such treatment, surgical intervention was advisable.

When hæmorrhage occurred in cases definitely diagnosed as gastric ulcer, all food other than occasional sips of water should be withheld for some days and rectal saline with 2 per cent. of glucose administered. Death from hæmorrhage was extremely rare in Sir William Willcox's experience and operation only rarely necessary. He was encouraged to carry on medical treatment by the fact that in his experience, with which Dr. B. H. Spilsbury's pathological findings agreed, carcinoma very rarely arose from gastric ulcer.

The Operation of Election.

MR. JAMES SHERREN said that the acute ulcer only required surgical treatment where perforation had occurred. For chronic gastric ulcer, which adequate medical treatment had failed to relieve, many forms of operative procedure were employed. In deciding on the general line of treatment he thought it should always be borne in mind that gastric ulcer was definitely a precancerous condition, malignant changes being demonstrable in the edge of many typical chronic ulcers. Any operation which did not include the removal of the ulcer left the patient exposed to the risk of cancer. He had found excision of the ulcer or sleeve resection of the ulcer-bearing portion of the stomach often fail to give permanent relief. For the small ulcer he now performed Balfour's operation, and for larger ulcers partial gastrectomy. For hour-glass stomach partial gastrectomy was again the operation of choice where possible, though in some cases gastro-enterostomy into both pouches was the only available treatment. Hæmorrhage from a chronic ulcer was a further indication for destruction of the ulcer combined with gastro-enterostomy, or again for partial gastrectomy. He agreed with Sir Berkeley Moynihan in regarding partial gastrectomy as a not very severe operation which gave admirable results, but patients should always be warned of the altered physiological conditions occurring afterwards. For at least three months after operation the diet must be carefully regulated so as to be non-irritating to the anastomosis and the jejunum. Mr. Sherren looked forward to the time when so extensive an operation should be obviated by earlier diagnosis and more successful medical treatment.

DR. A. B. SOLTAU referred to the difficulty of diagnosis without operation, and the importance of finding and treating the primary toxic focus. For perforation, cicatricial deformity of the stomach, repeated hæmorrhage, and for the "relapsing" ulcer there would be no doubt that surgery alone offered prospect of cure. By this he must not be understood to be a wholesale advocate of surgery for all cases of gastric ulcer, since it had been his misfortune to see, and have under his care, many cases where surgery had failed lamentably—so many that he had come to the conclusion that the cases recorded in surgical statistics as "not traced" after operation came to the West of England. Some of these cases had been operated upon twice or even thrice without improvement, and their further treatment presented a most difficult problem. His experience led him to believe that gastric cancer was very rarely preceded by recognisable symptoms of gastric ulcer; this he thought was an argument against extensive surgical procedures for simple ulcer.

MR. A. J. WALTON'S contribution will be found on p. 269 of this issue.

MR. H. W. CARSON said it had been his custom to review his cases in groups from time to time and to modify his operative work in the light of experience thus gained. At first he had practised gastro-enterostomy for all cases, with the result that 60 per cent. of cases were cured, almost all of these being cases of pyloric or pre-pyloric ulcers. He had since continued to practise gastro-enterostomy only for this type of ulcer. Simple excision for other cases yielded good immediate results, but later results were not encouraging; and "sleeve resection" was only suitable for special cases. For large "saddle-shaped" ulcers and ulcers adherent to the pancreas he had recently performed partial gastrectomy (the Mayo-Polya operation) with most encouraging results; the rapid convalescence being due, he thought, to the abolition of a focus from which constant septic absorption had been going on. His treatment of "hour-glass" stomach depended on the state of the causative ulcer; when active, partial gastrectomy, when healed, plastic operations, were respectively indicated. When perforation had occurred he preferred simple suture with drainage of the pelvis as the quickest procedure and the one least liable to cause shock. When one hæmorrhage had occurred from a case definitely diagnosed as gastric ulcer operation was demanded—it might even be preferable to operate during the progress of hæmorrhage. To wait was to court disaster from a second hæmorrhage which, if not fatal in itself, left the patient in a precarious condition, unfit to stand the operation then clearly necessary.

The Need for Team-Work.

MR. J. E. ADAMS referred to the necessity for "team-work" in assessing results. Diagnosis of gastric ulcer was the work of a team—a physician or surgeon, a radiographer, and a chemical pathologist. The same team should investigate cases after treatment; thus only could cure be proved definitely.

The sole clinical sign of active ulceration, tenderness in the epigastrium, disappeared only after some form of partial gastrectomy, which he therefore considered to be the operation of choice. This operation had the further advantage over gastro-enterostomy of removing a potential carcinoma. Careful dietetic and medical treatment should follow any gastric operation.

MR. GORDON TAYLOR said that he had been until recently a strong advocate of partial gastrectomy for all cases of gastric ulcer, but now reserved that treatment for large ulcers, especially when they had given rise to hæmorrhage. For the smaller ulcers he had reverted to practising gastro-enterostomy with or without excision of the ulcer. When operating for hæmorrhage he attached great importance to blood transfusion before or during the operation or both. When this was done it was possible to operate successfully during the progress of the hæmorrhage. When operating for perforation he always performed gastro-enterostomy in addition to suturing the perforation. He had been led to do this by the recurrence of perforation in three cases in which simple suture only had been performed.

The Formation of Carbon Dioxide in the Stomach.

DR. E. P. POULTON said that acute ulcer of the stomach was caused by combination of sepsis and acidity. In the experimental cases described by Bolton at the discussion last week these ulcers healed in three weeks, and could only be rendered chronic by occlusion of the pylorus. Why such ulcers should become chronic in man we could not yet say.

He wished to make it clear that even chronic ulcers would heal under medical treatment, as proved by X rays, and not merely by relief of symptoms. The effects of the ordinary treatment with alkalies should be attributed to the formation of CO_2 in the stomach rather than to the mere neutralisation of the gastric acidity. He had recently been able to afford great relief to a patient suffering from gastric ulcer by the administration of two separate draughts, one containing sodium bicarbonate, and the other citric acid. Their admixture in the stomach caused its distension by CO_2, which was eructated by the patient with rapid relief of pain.

Conclusion.

The PRESIDENT regretted that medical treatment should not have been more strongly advocated at the discussion, since there could be no doubt that a very large proportion of cases were amenable to this form of treatment. Even better results might be attained when the ætiology of gastric ulcer was better understood. It was, for instance, commonly accepted that hyperacidity was only one of the factors which delayed healing, yet the Lenhartz diet, which was so universally and successfully employed in the treatment of gastric ulcer, caused increased hyperacidity. Surgery should come in when medical treatment, fairly tried, had failed. The after-results of gastro-enterostomy were not always as successful as was generally supposed. Many cases, unimproved and even aggravated by operation, were to be found at watering places on the south coast seeking vainly for health.

SECTION OF LARYNGOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 3rd, Sir WILLIAM MILLIGAN, the President of the section, occupying the chair.

Endothelioma of the Larynx.

Mr. WALTER HOWARTH exhibited a female patient, aged 40, who had had removed what members regarded as a unique condition—namely, endothelioma of the larynx. She was seen in May last, when a history of hoarseness of two years' standing was given. A smooth red swelling was seen to be occupying two-thirds of the anterior portion of the left ventricular band, completely hiding the left vocal cord. Lipoma was thought to be a possibility. Examination by the direct method revealed a more extensive growth than had been suspected, and the cord was found to be fixed. Laryngo-fissure was carried out in the following month, and the tumour, with the left ventricular band and vocal cord, and one-third of the right ventricular band and vocal cord removed. The violent bleeding rendered the operation a difficult one. Recovery was uninterrupted. Prof. S. G. Shattock diagnosed the tumour as endothelioma, and cut and prepared sections of it.—Mr. F. H. DIGGLE mentioned a report of a mixed subglottic growth, partly endotheliomatous, in the Mayo Clinic records in 1920.—The PRESIDENT congratulated the exhibitor on the excellent result, and expressed the view that the case was unique, a view supported by Dr. W. HILL and Dr. IRWIN MOORE.

Sarcoma of Ethmoid and Antrum.

Mr. HOWARTH also showed an example of this condition in a child aged 9. There was a three months' history of swelling of the nose and a difficulty in breathing at night. A diffuse firm swelling was evident on the left side of the nose, and intranasally there was a large ragged polypoid growth which bled easily. On the right side of the neck and at the angles of the jaw were very hard swellings. Mr. Howarth said his custom was to rely upon radium in treating these cases, and he proposed to use that substance both inside and out.—Mr. HERBERT TILLEY believed the growth arose from the left ethmoidal region and subsequently eroded through the septum and appeared on the right side. One reason for this view was that there was, at an early stage, watering of the left eye. He mentioned a case of vascular sarcoma in the left nasal cavity, which was regarded as hopeless from the point of view of ordinary surgery, but which was quickly cured by thorough irradiation.—Mr. E. M. WOODMAN thought the growth in this case came from the septum. He agreed that radium would probably clear the condition up.—Dr. W. HILL suggested a combination of radium and X ray applications.—The PRESIDENT raised the question of the efficacy or otherwise of Coley's fluid in sarcoma. In one of three cases of his own it caused the growth to disappear. In cases of this nature which were beyond ordinary surgery a combination of the most modern methods should be used.

Ulceration of Malignant Œsophagus into Trachea.

Mr. H. V. FORSTER (Liverpool) exhibited, from a man aged 45, a specimen showing ulceration of a malignant growth of the œsophagus into the tracheal bifurcation, with a fatal result. A week previously, when taking tea, he had a violent fit of coughing, and the medical attendant found pyrexia with signs suggestive of pneumonia. He had had vague pains in the chest for some months, but the patient only complained of a week's illness, during which he could not take nourishment and became very wasted. Water which was taken was at once coughed up. Skiagrams showed complete arrest of food at the level of the ninth dorsal vertebra, and the trachea was lined by coughed-up bismuth food. He died in a few days of exhaustion and septic pneumonia.—The PRESIDENT related two somewhat similar cases from his own experience, and Mr. DOUGLAS HARMER spoke of the length of time some of these patients managed to live; one gentleman, who coughed back water he attempted to swallow, and whose food entered both bronchi, lived for more than a year afterwards and went about his business in the ordinary way.

Laryngeal Case for Diagnosis.

Mr. T. B. LAYTON brought forward a man, aged 43, occupation that of stoker, who had had aphonia for 11 months, and had been losing weight and showing a rise of temperature. Wassermann test was negative, and Dr. Geoffrey Marshall did not regard the condition as pulmonary tuberculosis; the opinions of members were sought.—The PRESIDENT regarded it as a case of malignant disease of the cord grafted upon an inflammatory condition. Four speakers agreed with this view.

Palato-labial Dysarthria.

Sir J. DUNDAS-GRANT showed a series of cases including that of a man, aged 50, who complained of having a constant cold. Nose and naso-pharynx were free, but the palate was almost immobile. It was not like a case of ordinary bulbar disease, and the man's peculiar manner gave the suggestion of general paralysis of the insane.—Sir J. DUNDAS-GRANT also showed a man, aged 46, who had a series of disabilities which were relieved by the extraction of a calculus from Wharton's duct. When seen the patient had remains of hemiplegia of the left side of the body and face, which had occurred suddenly six months ago. There was dense induration and swelling in the left submaxillary region from the mandible to the larynx, looking like a gumma; it was in reality an inflammation of the submaxillary gland. Relief followed the detection and removal of a calculus from Wharton's duct, with some muco-purulent fluid.—The PRESIDENT showed a calculus he had removed from Wharton's duct in a similar case. The stony hardness of the gland in his case he attributed to fibrosis.—Sir J. DUNDAS-GRANT also brought forward a middle-aged man whose complaint was of dysphonia and who was suspected of being tuberculous. The Wassermann test was negative, but there were mucous patches on the vocal cords, and eventually an admission of syphilis while in the Services was obtained.

Suction Apparatus for Throat Operations.

Mr. C. K. MOSELEY demonstrated a suction apparatus designed to keep the operating area in nose and throat procedures free of blood and discharges by means of

suction. It was claimed to be particularly useful in bronchoscopic conditions and in operations on the nasal passages.—Dr. F. E. SHIPWAY referred to the great satisfaction he had derived from the use of the somewhat similar suction apparatus of the American Sorensen Co., and this testimony was supported by Mr. W. M. MOLLISON, Mr. LAYTON, Mr. NORMAN PATTERSON, and others.

MANCHESTER CLINICAL SOCIETY.

A MEETING of this Society was held in the pathological department of the University of Manchester on Jan. 20th, with Prof. G. R. MURRAY, the President, in the chair.

Prof. H. R. DEAN gave a brief summary of the history of the Wassermann reaction and described the technique of the method pursued in his department together with the precautions taken against error.

Dr. WILLIAM DYSON opened the discussion from the clinical aspect, and pointed out its value and limitation as applied to clinical medicine.

Mr. MUMFORD, Dr. DIBLE, Mr. SAVATARD, and Dr. MURRAY also took part in the discussion.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

THE annual meeting of this Society was held at Manchester on Jan. 20th, when Mr. HAROLD CLIFFORD (Manchester) was elected President for the ensuing year.

The retiring President, Mr. CARLTON OLDFIELD, delivered a valedictory address on the

Treatment of Pernicious Vomiting of Pregnancy.

He had met with 29 cases during the last 15 years. There had been no deaths and he had only emptied the uterus in one instance. His treatment consisted in the removal of the patient to a hospital or nursing home, prescribing ordinary diet, and not allowing her to have any bowl into which to vomit.

Mr. LEYLAND ROBINSON read a paper on

Hyperthyroidism during Pregnancy.

The thyroid and parathyroids formed one glandular unit intimately concerned with the growth of cells, the full development of the normal functions of the sexual organs and the regulation of calcium metabolism. Special activity was seen at puberty, during menstruation, and especially during pregnancy when the extraordinary fœtal demands for calcium led to a physiological hyperthyroidism. Three clinical groups were described. 1. Physiological hyperthyroidism characterised by symptomless enlargement of the thyroid gland and occurring in 50 per cent. of pregnant women. 2. Graves's disease, a condition not due to simple thyroid excess but the result of toxæmic changes involving the whole endocrine system. Such changes favoured sterility and therefore pronounced Graves's disease was rarely found associated with pregnancy. 3. Minor degrees of hyperthyroidism were relatively common, and the speaker described 15 cases in which the symptoms of hyperthyroidism were combined with others suggestive of tetany. Calcium depletion, the result of prolonged lactation, rapid childbearing, and insufficient nourishment appeared to be an important ætiological factor and called for the exhibition of calcium salts in such cases. In addition, parathyroid had been given in order to meet a possible deficiency (suggested by the clinical resemblance to tetany), and also because this gland appeared to have a definite action in fixing calcium in the tissues or preventing undue elimination by the blood. His results had been encouraging and in many cases all troublesome symptoms had disappeared.

Reviews and Notices of Books.

PRACTICE OF MEDICINE IN THE TROPICS.

Vol. I. Edited by Lieut.-Colonel W. BYAM, O.B.E., and Major R. G. ARCHIBALD, D.S.O. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1921. Pp. 856. £4 4s.

THE standard aimed at and maintained with conspicuous success, at any rate in the first of this series of three volumes, is likely to ensure for this work a permanent status as a book of reference for practitioners and research workers in the tropics; its appearance marks a period in the medical literature of the tropics. The work is dedicated to the Fellowship of Medicine, and in its production the editors have endeavoured to promote a closer relationship between members of the medical profession throughout the English-speaking world. No less than 78 contributors, including a number of well-known persons, have written upon their special subjects, and it is likely that, as a result, the qualified student will return for instruction on tropical medicine to teaching centres throughout the British Empire and in America, staffed by these authorities.

In this volume many important subjects are treated. The section on sanitation, by Dr. Andrew Balfour, abounds with original suggestions. Lieut.-Col. Tull Walsh, who deals with tropical nursing, raises important side-issues—such as caste, native customs, and prejudices—which most writers fail to consider. The entomological section is in the hands of several authorities. Dr. C. Warburton deals exhaustively with the ticks (*Ixodoidea*), Ll. Lloyd with the lice (*Anoplura*), M. E. Macgregor with the bugs (*Rhyngota*), and H. F. Carter with the blood-sucking Nematocera (mosquitoes, &c.). Mosquito-control is dealt with by Malcolm Watson; the Tabanidæ by H. H. King; the non-bloodsucking Diptera by L. O. Howard and W. D. Pierce, both eminent American authorities; the blood-sucking Muscidæ by Ll. Lloyd and W. S. Patton; the fleas (*Siphonaptera*), by M. E. Macgregor; and the making of entomological collections by S. A. Neave. This whole section is remarkable for the beauty and accuracy of the text-illustrations.

A description of laboratory methods occupies 167 pages, mainly by R. G. Archibald. Admitting that it is not always possible to write engagingly upon details of laboratory technique, these descriptions are not fortunate in style; nor has a wise discretion with regard to the selection of material for inclusion always been maintained. The efficacy of Cutler's method of cultivating *Entamœba histolytica* in vitro (p. 520) has not only not been confirmed, but has actually been disproved, and this should not be given forth as an accepted method.

Notable among the subsections are those on sera and vaccines, by D. Harvey; a description of an anti-variolous vaccine establishment in the tropics, by A. B. Green; and a welcome account of transfusion of blood, by the American Red Cross Society in France.

The article on snakes and snake-poisoning, by A. H. Acton and R. Knowles, embodies the researches of these well-known workers, and may be regarded as an authoritative statement on the subject. The account of vegetable and fish-poisoning in the tropics is possibly the best article in the book. Dr. H. H. Scott, known for his original work on ackee-poisoning, has presented a logical and accurate account of a little-understood subject. A note on the chemical investigation of medico-legal cases is by W. M. Colles. This is a well-written and valuable contribution to the symposium by a man of practical experience.

The volume is profusely illustrated. The 35 coloured plates are for the most part beautifully executed, and we would single out for special praise the mosquitoes, of which the 15 species are figured. It is doubtful, however, whether the rather lurid backgrounds and cloud effects, in some of the coloured plates of snakes, enhance their value. The text-

figures number 334 and are clear and satisfactory. A portrait of Sir Patrick Manson, the father of modern tropical medicine, appropriately forms the frontispiece of the first volume. We have spent much time in perusing this volume and can testify to the extraordinary freedom from errors and an accuracy of proof-reading which does great credit to the editors. If the rest of this work conforms to the high standard set by the first volume, its success will be assured.

PROHIBITION IN AMERICA.

Its Relation to the Problem of Public Control of Personal Conduct. By Sir ARTHUR NEWSHOLME, K.C.B., M.D. Lond. London: P. S. King and Sons. 1921. Pp. 68. 2*s.* 6*d.*

DURING the past three years Sir Arthur Newsholme has had opportunities to study the question of prohibition in America in widely separated parts of the country, and among various elements of the population. The Norman Kerr lecture delivered in October, 1921,[1] before the Society for the Study of Inebriety, contained many of his considered opinions on the question and this book is an expansion of the lecture, giving the results of the passing of the National Prohibition Act in the United States, as they appeared to him, and a summary of the measure in an appendix. The author warns readers against relying on the information supplied by many British journals, and is convinced that the British public would be astonished could they realise the revolution already brought about in the life of the United States.

In the first part of the book he traces the history of anti-alcoholic effort in America, and the steps by which the Eighteenth Amendment of the Constitution—an amendment necessary to secure the national enactment of prohibition—was secured. Of the 48 State Legislatures, 45 had formally approved the amendment when the Federal House of Representatives passed—for a second time, and over President Wilson's veto—the Act, by 176 votes to 55, on Oct. 27th, 1919. On the following day the Senate passed it by 65 votes to 20. The idea that the American public were taken by surprise, or that the legislators had been coerced into voting contrary to public opinion, can therefore hardly be entertained; during the presidential election of 1921 both candidates were pledged to enforce the Amendment, and the admittedly powerful saloon interests could not have failed to make their impression had public opinion been less than overwhelmingly united to destroy them.

Influences leading to the enactment of prohibition are briefly enumerated by Sir Arthur Newsholme as (1) the teaching in elementary schools, (2) the desire for clean politics, (3) the activity of the Anti-Saloon League, (4) the determination to make local prohibition effective, (5) the pronouncements of the American medical profession, (6) the increased industrial efficiency where abstinence had been enforced, (7) the desire to safeguard American soldiers, and (8) the special importance of abstinence for negroes. In connexion with the fifth of these contributory causes, reference has already been made in our columns[2] to the referendum on the use of alcohol in medicine, undertaken by the *Journal of the American Medical Association*. The final tabulation of results is not yet to hand, but a glance through the available tables of individual States would seem to confirm Sir Arthur Newsholme's statement to the effect that of the 152,627 physicians in the United States, 78 per cent., or approximately four out of every five physicians, have refrained from taking out permits to prescribe alcohol. Increased domestic brewing, smuggling, illicit manufacture and sale of alcoholic liquor, and defective working of the Act are not on such a scale as to counterbalance the increased abstinence resulting from prohibition. "The majority of the American population are rapidly losing their appetite for alcoholic drinks, and young people have no opportunity to acquire this appetite. If this be admitted, it must also be agreed that people can be made sober by legislation." The diminution in alcoholism, crime, and poverty which have resulted would appear to be undisputed.

In the second part of the book Sir Arthur Newsholme turns to prohibition in relation to good government. The fear of encouragement of the spirit of intolerance, and of the effect of that spirit on the moral fibre of the people, he dismisses as fantastic. He describes prohibition as "a means to secure liberation from a great slavery," and believes that its enforcement in an increasing degree will follow, with the approval of the American public. Sir Arthur Newsholme has not attempted to apply the lessons of American experience to conditions in this country, but contents himself with presaging a time soon to come when Great Britain will be compelled to consider her own problem in relation to national efficiency.

[1] THE LANCET, 1921, ii., 817. [2] Ibid., 1400.

COMPARATIVE ANATOMY.

Baillière's Atlas of the Dog: Its Anatomy and Physiology. By FREDERICK HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E., Member of the Board of Examiners of the R.C.V.S., and F. HAROLD STAINTON, F.R.C.V.S. With 5 original plates and 43 figures in colour by G. DUPUY, M.D. London: Baillière, Tindall and Cox. 1921. Pp. 24. 10*s.* 6*d.*

A GREAT want has been supplied by the production of this excellent atlas. Hitherto any information that would act as a plain guide to the anatomy and physiology of the dog has had to be sought for from many different sources. The atlas contains descriptions of the skeleton, the various systems of the body, dentition, the ductless glands, and organs of sense. The text is clear and concise and supplies a satisfactory and interesting accompaniment to the beautiful plates and figures that form the most important part of the atlas. To the veterinary practitioner it ought to be of supreme value, and the student of comparative anatomy and physiology will find in it a useful work of reference.

THE CHOLERA EPIDEMIC OF 1832.

The History of the Cholera Epidemic of 1832 in Sheffield. By JOHN STOKES, M.A., M.D. Sheffield: J. W. Northend, Ltd. 1921. Pp. 213.

CHOLERA has now ceased to be a menace in these islands owing to improvements in sanitation and a thorough knowledge of the exciting cause of the disease together with its mode of transmission. Not many now alive can recollect the epidemic of 1854–55, some episodes in which were so vividly described by Kingsley in his novel "Two Years Ago," but many may remember the epidemic of 1866, which ravaged East London, and the heroism of Father Lowder and others among the local clergy. Even in 1854, and certainly in 1832, cholera was looked upon as a judgment of God for sin, and next to no attention was paid to sanitary matters. Sheffield, in common with many other large towns, was an ideal breeding ground for an epidemic, above all for a water-borne disease, and when we read Dr. Stokes's description of the water-supply and general sanitary state of the city our only wonder is that the mortality was not even greater. Incidentally he mentions, in talking of back-to-back houses, that "there are fifteen to sixteen thousand such back-to-back houses and courts still left as a memorial to the fact that local prejudices—and perhaps local landlords—rise superior to the claims of the public health." We see by the preface that the book was ready for printing in 1914, since when, in view of the postponement of reconstruction following on the war, sanitary conditions have certainly not improved. The local board of health, which was constituted in 1831 owing to the presence of cholera in Sunderland, and superseded a multitude of small governing bodies, seems to have acted with energy and sense on the first occurrence of cholera cases in Sheffield. It laid stress upon the necessity for ventilation, cleanliness, and a pure water-supply. The first cholera patient was buried

on June 14th, 1832; the total number of cases between July 8th and Dec. 24th was 1348, with 403 deaths. The leading spirit of the board of health was its chairman, Mr. James Montgomery, who, says Dr. Stokes, stands out as "an energetic and farseeing sanitary expert possessing the somewhat rare combination of superabundant piety with common-sense." He wrote various hymns, which are printed at the end of Dr. Stokes's book. Of these No. 291 is not unpoetical; and here, as in the other hymns, Mr. Montgomery inclines to the view that the epidemic was a chastisement for sin. If we allow that dirt, carelessness, and greed for rents for insanitary houses are sins, it certainly was.

Many interesting extracts from municipal records and contemporary newspapers are quoted, but though Dr. Stokes's book gives a good picture of certain aspects of the social life of the time we are not told much about the medical side of the epidemic. It is, nevertheless, well worth reading. We must not omit one gem from a local newspaper called the *Iris*. The dead were buried within a few hours of their decease and accordingly there was much fear on the part of some people of premature burial. A correspondent signing himself "Inquirer," after referring to this fear, continued, "Would it not be practicable and well, effectually to prevent resuscitation before closing the coffin, by some unoffensive method, such perhaps, as closely sealing the mouth and nostrils, at any rate when desired to do it?"

JOURNALS.

BRITISH JOURNAL OF SURGERY.—In the January issue H. P. Pickerill and J. Renfrew White consider the question of the tube flap in plastic surgery. The former deals with this method in facial work, and shows photographs of some good results; there appears to be nothing original in his technique. Renfrew White describes the application of these tubed flaps to the treatment of large chronic ulcers of the extremities, and gives a most convincing account of their utility.—Sir D'Arcy Power continues his series of Eponyms, his subject being Brodie's Tumour of the Breast and Brodie's Abscess.—A study of the surgical pathology of hypernephromata has been undertaken by Henry W. S. Wright, who concludes that these growths arise from the renal tubules. Their structure is essentially papillary, and like other papillary formations they are for a time innocent, but later take on the characteristics of a carcinoma.—Harry Platt reviews the present state of our knowledge of pseudo-coxalgia (osteo-chondritis deformans juvenilis coxæ), reporting a series of 23 cases, and contrasts these with 12 others showing certain clinical or radiographic resemblances to them. The radiographic manifestations are analysed in detail, and the theories of pathogenesis are reviewed.—H. J. Waring and T. C. Milligan describe a method of treatment for non-union of fractures which persist after plating or bone-grafting operations: the method consists of comminution and impaction of the bone ends.—Raymond Johnson describes the pathology, symptomatology and treatment of carcinoma of the jejunum and ileum exclusive of the ileocæcal valve.—Sir Charles Ballance records four cases of aneurysm of the innominate artery, which he has treated by proximal ligature. He concludes that aneurysm of the bifurcation of the innominate may be safely operated on, provided that part of the sternum is removed, and that the ligatures are tied in a stay-knot without rupturing the coats.—Alex. MacLennan gives an account of embryonic rests found associated with the sacs of inguinal herniæ in children.—T. Pridgin Teale gives photographs of a patient showing the result 40 years after the performance of a rhinoplasty in 1881.—R. C. Shaw discusses the gastric crises in tabes dorsalis and their surgical treatment.—The following rare or obscure cases are described: (1) A case of multiple pulsating bone tumours, the bones affected being the os calcis, tibia, and femur of the same side, and the pathological findings being obscure; (2) vicious circle for 14 years after gastro-jejunostomy; (3) torsion of the gall-bladder; (4) torsion of the hydatid of Morgagni; (5) congenital stricture of the anus persisting to adult life, with acquired megacolon; (6) chronic duodenal ileus.—The issue includes an account of a visit to the clinic of Sir Berkeley Moynihan and reviews of current books.

BIOCHEMICAL JOURNAL. Vol. XV., No. 5, 1921.—Excess Protein and Mammary Secretion, by G. A. Hartwell. Lactating rats fed on diets containing a high percentage of various proteins yield milk which is harmful to the offspring, for these lose weight, show spasms, and eventually die. It is found that these symptoms are less severe in the cases where the mother was observed to lose weight during the experiment. The effect does not seem to be due to lack of vitamin.—Note on the Limitations of the Modified Lewis-Benedict Method of Blood Sugar Estimation, by R. A. Guy. The method is inaccurate in presence of appreciable quantities of acetone—an observation of importance in the estimation of sugar in diabetic bloods.—The Combinations of Hæmoglobin with Oxygen and Carbon Monoxide, and the Effects of Acid and Carbon Dioxide, by A. V. Hill.—The Bactericidal Action of the Quinones and Allied Compounds, by G. T. Morgan and E. A. Cooper. Quinones react as peroxides with proteins, and therefore possess a much more powerful bactericidal action than phenols, which act merely as protein precipitants.—Experimental Studies on Cellular Multiplication: (1) The Multiplication of Isolated Infusoria; (2) The Influence of Mutual Contiguity upon Reproductive Rate and the part played therein by the "X-substance" in Bacterised Infusions which Stimulates the Multiplication of Infusoria, by T. Brailsford Robertson. A comparison is drawn between the whole collection of unicellular organisms in a culture and the colony of mutually interdependent cells which make up the body of a single metazoan individual. It is found that the infusorian cell can manufacture from the soluble heat-stable products of bacterial metabolism some substance which accelerates division and growth. It is suggested that the auto-catalytic nature of the growth of a higher organism might be dependent upon a similar factor, for the production of which some yet undiscovered accessory food-substance might be required.—The Penetration of Electrolytes into Gels: (3) The Influence of the Concentration of the Gel on the Coefficient of Diffusion of Sodium Chloride, by W. Stiles and G. S. Adair. (4) The Diffusion of Sulphates into Gels, by W. Stiles. The chief points of physiological interest are the comparatively small retardation of the diffusion of salts by such gels as agar and gelatin, and the normal rate of diffusion of sulphates into these substances. The small uptake of sulphates by plants is therefore probably not due to a lack of diffusibility on the part of these salts.—A Method for the Separation of Amino-acids from the Products of Hydrolysis of Proteins and other Sources (Preliminary Communication), by H. W. Buston and S. B. Schryver.—The Pectic Substances of Plants. Part II.: A Preliminary Investigation of the Chemistry of the Cell-Walls of Plants, by D. H. F. Clayson, F. W. Norris, and S. B. Schryver.—The Quantitative Estimation of the Fat-Soluble Factor, by S. S. Zilva and M. Miura. The vitamin content of any food is estimated by determining the minimum quantity of the food required to induce definite growth in rats subsisting at constant weight on a diet deficient in the factor.—Day and Night Urine during complete rest, Laboratory Routine, Light Muscular Work, and Oxygen Administration, by J. A. Campbell and T. A. Webster. Total nitrogen was decreased at night under all routine specified. Ammonia was increased at night, but creatinin, urea, uric acid, and amino-acids were then diminished. The acidity was higher during the night, and this led to increased output of phosphate. The sulphur was evenly distributed between day and night. Oxygen administration did not affect the composition of the urine in the normal subject.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 11, 1922.

State Deduction from Hospital Revenue.

CERTAIN recommendations of the Cave Committee for increasing the revenue of voluntary hospitals have been endorsed by the Revenue Committee of King Edward's Hospital Fund for London and should secure sympathetic consideration from the Chancellor of the Exchequer, the known and acknowledged requirements of State revenues notwithstanding. Lord CAVE'S Committee proposed[1] that in the first place contributions to hospitals by employers should be allowed as deductions from profits for income-tax purposes; secondly, that in regard to residuary estate bequeathed to a hospital, the hospital should be entitled to claim repayment of income-tax as from the expiration of a year after the testator's death; thirdly, that all testamentary gifts to hospitals should be exempted from legacy and succession duties. The proposal briefly is to benefit the revenue of hospitals by granting them freedom from the obligation to diminish their incomes by contributing to the revenue of the State. This involves no new principle. Exemptions from State taxation are already enjoyed by charitable institutions, and even from rates where a special Act of Parliament has so provided. The gifts of a deceased testator to a hospital have, however, hitherto contributed their full quota to the Exchequer, and the residue passing to the charitable object has become less and less under the financial conditions imposed by the war. Estate duty upon a scale dictated by the value of the whole of the property of the deceased is not touched by the proposals of the Cave Committee. In accordance with the second and third proposals of the Committee, the full value of the gift named by the testator would, however, pass to the hospital without deductions hitherto legally enforced. Under the heading of legacy and succession duties the State has hitherto been able to exact payment upon the highest scale permitted to it, and it has not only profited by every £1000 left to a hospital in the same manner as it would if the legatee had been an individual, but has frequently taken its toll upon a higher scale. That is to say, a £1000 left to a hospital has paid duty at a higher rate than it would have if it had been bequeathed to a relative of the deceased, and the State has thus profited by a disposition which so far as the State was concerned, has been wholly fortuitous, and which, moreover, has been made for the benefit of the public.

The State is therefore asked now to forgo, in the first place, its rights in respect of contributions from employers, which may be in the nature of payments under commercial contracts, but which involve obligations on the part of the hospital, out of which no commercial profit will arise. They are contributions also which are largely the result of modern recognition of the hospitals' part in the social and economic development of the nation. They are incidental to a condition of things which did not exist in the early days of the last century, when the factory worker fell ill, and died unaided, and another took his place, without any suggestion that this was not a natural and inevitable sequence of events. Further, the State is asked to allow the hospitals to take into their revenues for effective purposes the whole, and not a proportion only, of that which the testator has set apart for the benefit of his fellowmen when suffering incapacity through sickness or accidental injury. These proposals again recognise the existence of a demand for hospital aid which has outstripped the limits of charitable benevolence and private sympathy. There is, however, to be faced by the hospitals of to-day not only an increasing crowd of incoming patients craving the treatment of their cases. There is the obligation to provide everything that is necessary for treatment in accordance with medical and surgical science, and everything conducing to the development of medicine and surgery which we associate with the modern hospital. It is not therefore unreasonable to ask for an extension in Imperial taxation of principles which were admitted as valid in such statutes as the House Tax Act, 1808, and the Income Tax, 1842. The accepted view of the duties and power for good of the voluntary hospitals was widely different even at the latter date from what it now is. At the present time, incomparably more than then, the hospitals are recognised as having relieved and as relieving the State of obligations which public opinion would otherwise compel it to accept. The Chancellor of the Exchequer can hardly resist the justice of this plea.

[1] THE LANCET, 1921, i., 1320.

Quinine and Cinchona Alkaloids.

THE best method of giving cinchona alkaloids in malaria, and the relative value of these alkaloids, have been the subject of much controversy. Major H. W. ACTON and his collaborators, among whom Dr. DAGMAR F. CURJEL and Asst.-Surg. J. O. DEWEY deserve special mention, have recently collated material and made observations which go a long way to settle the chemical and therapeutic relations of these substances. In an article on the Diagnosis and Treatment of Benign Tertian and Malignant Tertian Fevers[1] they show that, while quinine is well suited for the cure of malignant tertian fever, cinchona bark in the form of cinchona febrifuge proves more efficacious and less costly for routine use in the treatment of the more common benign tertian form. The efficacy of the febrifuge apparently depends on the presence of quinidine.

In THE LANCET of Jan. 21st Major ACTON dealt with the chemistry and therapeutics of the cinchona alkaloids. His main theme is that these alkaloids run into two parallel groups—the dextro-rotatory, of which quinidine, cupreidine, and cinchonine are the chief examples, and the lævo-rotatory, represented by quinine, cupreine, and cinchonidine. These two optical groups have distinct pharmacological and therapeutic actions, and drugs allied to those named above, whether natural or artificial, bear the same characteristics. Besides the main alkaloids there are other hydro-alkaloids which occur in bark in smaller quantities, but which are more easily isolated in the laboratory. The relation of chemical formula of all these to optical and therapeutic activity is well worked out by Major ACTON. He has defined certain general points affecting both groups, as well as comparing and contrasting the lævo- and dextro-rotatory isomers. The relative activity of the isomeric groups has been worked out in the following terms:—toxicity to mice, action on lower forms of life as represented by a species of paramecium, anæsthetic action on the

[1] Ind. Jour. Med. Research, 1921, vol. viii., No. 4.

rabbit's conjunctiva, retardation of digestive ferments, and the fall of blood pressure in mammals. The dextro- or quinidine group has proved to be more toxic; a more dilute solution is sufficient to kill mice and paramecium; the local anæsthetic action is greater, digestive ferments are retarded longer, and (a point that may be of value in therapeutics) blood pressure is lowered to a greater extent; this last factor is especially noted in quinidine, the drug recommended in benign tertian fever.

Many of the general points elucidated are of immediate importance in the therapeutic administration of quinine. Apparently the special toxic effects of intravenous and intramuscular injections are due to the freeing of acid from the alkaloidal salt. Coagulation-necrosis, which occurs after intramuscular injection, and hæmolysis, which follows intravenous injection, do not depend on the quinine itself, but on this freed acid. With regard to the inconveniently low solubility (1 in 2000) of quinine base in saline solution, Major ACTON suggests that its solubility in oil and petroleum might have a therapeutic significance. The fact that the inhibition of digestive ferments is less when the ferment is first allowed to attack protein than when protein is allowed to be first impregnated with alkaloids, indicates that quinine should be given some time after meals; and moreover, since peptic digestion depends on acidity, which is used up by alkaloid bases, alkaloids by the mouth are best given in the form of salts. The inhibitory action on the amplitude and rhythm of intestinal muscle is probably not enough to hinder digestion, and while large experimental doses may cause a state of tonus, medicinal doses have no effect on uterine contractions and so do not cause abortion.

Nostrums and Quackery.

QUACKERY in America does not die easily or it would not have survived the attacks which have long been organised by Dr. ARTHUR J. CRAMP who directs the propaganda department and the bureau of investigation attached to the American Medical Association. The second volume of "Nostrums and Quackery" issued from the press of the Association has just reached us. The first volume appeared in 1911, contained some 500 closely printed pages, and was out of print in less than a year; the second volume contains more pages more closely printed and, if it had been produced in the same form as the previous volume, would have occupied over 1100 pages. Both volumes are completely occupied by articles on the nostrum evil, quackery, and allied matters affecting the public health, reprinted with or without modifications from the Journal of the Association. Dr. CRAMP assures us that the book has been prepared in no spirit of malice, but simply with the object of laying before the public certain facts the knowledge of which is essential to a proper conception of community health. Experience in America has shown that exposure of nostrum vendors does good in proportion to the extent that such exposure educates the public. When the veil of mystery is torn from the medical fakir, we quote Dr. CRAMP'S words, the naked sordidness and inherent worthlessness that remain suffice to make quackery its own condemnation. Strictly speaking, few nostrums on the American market are patent medicines at all; for if patented, the nostrum would not be a secret preparation, as its composition must then appear in the specification. Instead of being patented, the nostrum that becomes a big commercial success is one that receives a fanciful name, registered at Washington, which name becomes the property of the exploiter for all time, while its composition and curative claims may be changed at will. The true patent medicine, on the other hand, becomes public property in the United States at the end of 17 years.

In America, as with us, respectable pharmacists are on the same side as the medical profession in regard to fraudulent nostrums. They are no longer misled by the specious argument of the manufacturers that medical men are actuated by selfish motives in giving the public the facts regarding fraudulent proprietaries. An article appeared not long ago in the *Druggists' Circular*, from which the following quotation may be made:—

"Members of the medical profession are like members of a fire department in that they seek to prevent the very thing which makes their calling a necessity. What would we think of a fireman who purposely permitted a conflagration in order that his comrades might show the city how important it was to keep up a well-paid fire department? And what would be thought of a man who charged the firemen of the country with opposing, on the ground that it was cutting into the firemen's business, some device for putting out fires, when the firemen themselves knew the device to be a fake, and an obstacle to fire prevention—a menace because of the false sense of security which it gave in time of danger?"

But the nostrum purveyors do not lack confidence in themselves; a good example of the kind of claim, remarkable even in America, is contained in a sentence from a remedial system of exercises: "Conscious evolution has made possible for everyone the possession of super-health, super-vitality, super-courage, super-aggressiveness, super-mental power, and super every power." Staid and respectable journals in America, it appears, are willing to advertise such stuff as this, and it is not difficult to agree with Dr. CRAMP that those to whom this kind of thing appeals are still in need of education. The American Public Health Association is willing to go further and to couple legislation with popular enlightenment. The Food and Drugs Section at the recent annual meeting of the Association resolved to submit a model State law and ordinance for the control of the sale and advertisement of black-listed nostrums. We wish it well, remembering the untimely end of the Proprietary Medicines Bill introduced in our own House of Commons 18 months ago.

The Diagnosis and Treatment of Gastric Ulcer.

IN spite of recent additions to our means of investigating gastric disorder, the diagnosis of gastric ulcer still remains difficult, and the discussion held at the Royal Society of Medicine last week, and reported in this issue of THE LANCET, was thus of unusual importance. Cases are still confidently labelled "gastric ulcer" in which no ulcer can be found at laparotomy. Indeed, it is possible that the number and diversity of aids to diagnosis now at our disposal have increased the difficulties, since the findings of the chemical pathologist and of the radiologist may be diametrically opposed. Mistakes are probably made in both directions. We have no means of knowing how many cases diagnosed as functional dyspepsias on a negative radiographic or chemical report are, in fact, cases of gastric ulcer, though the number is probably not inconsiderable. The fractional test-meal is so recent an addition to our armamentarium that judgment as to its permanent utility must be suspended. It would appear to be a more rational procedure than the single test-meal, since it enables us to follow

the changes in the gastric contents before, during, and after the digestion of a meal; but much more work must be done before diagnosis can be made on these results alone. The rationale even is not yet clear. Different workers choose different curves (HCl curve or the curve of total chlorides) as representing the "curve of gastric secretion." It is true that a certain type of curve would appear to be definitely associated with pyloric stenosis, but we still remain ignorant as to whether the stenosis itself is due to definite ulceration, or to spasm reflexly set up by disease of other organs such as the appendix or gall-bladder. In the past much reliance has been placed on the analysis of a single test-meal in the differential diagnosis between gastric ulcer and cancer; but even here errors have occasionally arisen, a low HCl content, or even total absence of HCl, occurring in the absence of carcinoma. The clinician can undoubtedly obtain more help from X rays now than in the days when the radiologist made a diagnosis by inference from indirect signs, such as the movements, shape, and rapidity of emptying of the bismuth-filled stomach. The modern direct method aims at the demonstration of the bismuth-filled ulcer, and at the Mayo Clinic 95 per cent. of gastric ulcers are said to be accurately diagnosed in this way. Dr. A. E. BARCLAY'S remarks on these points were published last week. To radiological findings no absolute trust can be given, since local spasm may mimic ulcer at repeated examinations; and, further, we do not yet know what proportion of ulcers escape detection by the "direct" method. The fact remains that at present the diagnosis of gastric ulcer can only be made with absolute certainty at a laparotomy.

Physicians and surgeons are agreed that the treatment of gastric ulcer should be in the first instance medical. Since the fine work of Dr. CHARLES BOLTON and others, a description of which formed an earlier part of the debate, would show that sepsis has an important ætiological bearing on the disease, a septic focus should first be sought and eradicated. Oral sepsis is undoubtedly common, but it is doubtful whether the teeth can be justly condemned in anything approaching the majority of cases; and the wholesale extraction of teeth is particularly undesirable in any disorder of digestion. Sepsis may lurk also in the antra, the appendix, the gall-bladder, and the pelvic organs of women. Medical treatment still follows upon classical lines: prolonged rest in bed, some modification of the Lenhartz diet, and the administration of alkalis. While statistics are necessarily unreliable there can be no reasonable doubt that the majority of cases can be cured by medical treatment when this is sufficiently prolonged and thorough, and when it is initiated at an early stage. Where, however, the case resists medical treatment or relapses on one or more occasions after apparent cure, recourse must be had to surgery.

The surgeon should approach all such cases in a spirit of scepticism. Even if the case conforms in symptoms and signs to one of gastric ulcer, the operation must be regarded as exploratory. No procedure should be adopted until the whole of the stomach has been investigated and the ulcer found; to perform gastro-jejunostomy for symptoms may be disastrous should the "ulcer" be in reality gall-stones, a diseased appendix, a "floating kidney" with Dietl's crisis, gastroptosis, or omental adhesions causing gastric deformity, or any other of the score or more of abdominal derangements that may mimic gastric ulcer with considerable exactness. When the ulcer has been found, the exact procedure to be adopted depends upon its situation, nature, and size. For the non-adherent ulcer of moderate size near the pylorus posterior gastro-jejunostomy, with or without excision or "infolding" of the ulcer, yields a very high percentage of cures, although in the past there has been a recurrence of symptoms in some 2 to 3 per cent. of cases from gastro-jejunal ulceration. Whether the introduction of the catgut suture for both (or all three) layers, and the performance of the operation without clamps will reduce the incidence of this post-operative complication, only time and candid statistics can show. For very large ulcers near the pylorus, and the large saddle-shaped ulcer of the lesser curvature and ulcer of the body of the stomach, adherent it may be to the pancreas, many operations have been devised, but none would appear to yield such satisfactory results as partial gastrectomy. This severe operation, involving the short-circuiting of some 20 or more inches of the small intestine and the resection of a third part of the stomach, was originally devised for carcinoma of the pylorus. Its application to simple ulcer was first advocated and practised by the MAYO brothers in America, and by MOYNIHAN and SHERREN in this country, on the grounds that there is a close association between gastric ulcer and cancer. Whether we admit this assertion or not there can be no doubt that the operation has been astonishingly successful in the treatment of chronic gastric ulcer. In expert hands the mortality is not high. Sir BERKELEY MOYNIHAN shows that he has had but two deaths in 118 cases, and the proportion of absolute cures among the remainder closely approximates to 100 per cent.—a great record.

ENTRIES IN MEDICAL AND DENTAL REGISTERS.

THE Regulations of the Dental Board having received the approval of the General Medical Council and of the Privy Council, applications for registration under the Dentists Act, 1921, are now being considered. These should be addressed to the Registrar of the Dental Board at 44, Hallam-street, London, W.1. No one should be considered to be a dentist unless he possesses a certificate of registration, and medical practitioners are advised to satisfy themselves, before they enter into professional relations with any persons practising dentistry, that such persons have in fact been registered. For a fee of half-a-crown anyone whatever can obtain a copy of any entry in the Dental Register. Such a certificate does no more than certify that a name appears, and there is a statement on it to the effect that the document is not evidence of identity and should not be used as such. This also applies to entries in the Medical Register. At one time certified copies of these entries were only issued to the person concerned on receipt of a statutory declaration, but this was found to entail inconvenience, or even hardship. A practitioner, for example, who had gone to South Africa might require a certified copy of his entry and would write home to his brother for it: or a man who is proposing to sign on for a ship sailing in a few hours might need a copy of his entry. The Medical Register is legal evidence in a court of law, and there appears to be no reason why copies of certificates should not be issued when anyone can pick up a Register, point to a name, and say that that name is his.

INDEX TO "THE LANCET," VOL. II., 1921.

THE Index and Title-page to Vol. II., 1921, which was completed with the issue of Dec. 31st, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2.

Annotations.

"Ne quid nimis."

THE DECLINING INFLUENZA WAVE.

IN each of our two latest issues attention was called to the very high death-rate prevailing in Scottish burghs at the present time, the excess over normal being ascribed in chief part to influenza or to the respiratory diseases commonly associated with it. It may be recalled that in the statistical report [1] on the pandemic of 1918–19 it was pointed out that the third wave of the pandemic was felt more severely in the north than the south of England. The annual mortality rates per 1000 from influenza in the first wave were 0·7 in the county boroughs of the south (1·1 in London), 1·5 in the county boroughs of the midlands, and 2·0 in those of the north. In the second wave, the southern county boroughs had 7·3 (London 8·6), those of the midlands 8·6, and those of the north 7·6. In the third wave, the county boroughs of the south had 3·4 (London 3·3), those of the midlands 3·6, those of the north 5·1. The death-rates for all areas in the north was to that of all areas in the south as 1·02 to 1 in the second wave, as 1·61 to 1 in the third wave. The present recrudescence is following the same rule. In London the maximum of registered deaths was in the week ending Jan. 14th, 551, which gives a rate of 12 per 100,000 of population. If we take five of the northern county boroughs which have either passed the maxima or are not far from it—viz., Middlesbrough, Stockton, Sunderland, Gateshead, and Newcastle-on-Tyne, the total deaths (taking for each the week which has so far given the largest figure) amount to 242, which gives a rate of 32 per 100,000. The 16 Scottish cities, upon which the Registrar-General for Scotland reports weekly, returned 476 deaths in an estimated population of 2,370,600—i.e., 20 per 100,000. This is less than the rate for the five northern county boroughs mentioned, but greatly in excess of that of London, and may still not measure the maximum. As it is, the death-rates from all causes both for the week ending Jan. 21st and that ending Jan. 28th exceeded any week of the 1918–19 pandemic, and were the highest recorded since the week ending March 2nd, 1895. It would be interesting to compare the course of the Scottish city rates for that spring, inasmuch as the form of the epidemic of 1895 in London strikingly resembles that of the present winter. Another point on which information would be welcome is as to whether there is any relation between excessive influenzal mortality and industrial conditions. It is at least remarkable that the excessive rates are confined mostly to northern manufacturing towns, especially such places as have been hard hit indeed by the depression in industry. On the whole, it is still possible to say that the present influenza wave is not so severe as the third wave of 1918–19. In London, making due allowance for changes of population and classification, it is not much worse than that of 1895. The wave is plainly declining almost everywhere in England and should abate next week in Wales. Scotland has turned the corner in the weekly report just available.

[1] Supplement to the Eighty-first Annual Report of the Registrar-General, Cmd. 700 of 1920.

KALA-AZAR AND THE BED BUG.

MANY facts about the parasite of kala-azar suggest an arthropod vector and one stage in its extracorporeal history is presumably spent in some cool medium, for Sir Leonard Rogers in 1905 cultivated the parasite at a temperature considerably below that of the human body and failed to induce the parasite to change into its flagellate form at body-heat. This process of exflagellation may be supposed to occur either free in nature or in the body of some animal vector, most likely a blood-sucker. If the latter, we should have a right to expect its distribution to correspond to that of the human disease to which it gives rise. This is not the case with the bug (*Cimex lectularius* or *rotundatus*) the vector originally suggested by Major W. S. Patton and since supported by Rogers and many others. Transmission by the bug would imply the presence of the parasite in the peripheral blood of its host as a common natural event; but this, too, is far from being the case. The parasite is occasionally found in small numbers, ingested by phagocytes in the peripheral blood, but this can hardly be the natural route for the parasite to proceed to its destiny, and to provide experimental bugs with large numbers of leishmania by feeding them on splenic juice or on artificial cultures of the parasite is not exactly to reproduce natural processes. Patton and J. W. Cornwall recorded that when ingested in this manner the parasites exflagellated and collected in the midgut of the bug, becoming there transformed into a "thick-tailed form," and more recently Mrs. Adie, at the Pasteur Institute of Assam, observed the leishmania attacking the epithelial cells of this portion of the alimentary tract and, in one instance at any rate, penetrating them.

An announcement appears in the January number of the *Indian Journal of Medical Research* that Mrs. Adie, working for the kala-azar inquiry of the Indian Research Association, has found a swarming infection of Leishman-Donovan bodies in the salivary glands and ducts of a bug (*C. rotundatus*) caught on Nov. 24th on the bed of a suspected kala-azar case in an infected area and dissected two days later. Mrs. Adie states that "*the discovery positively proves that the bed bug is capable of transmitting the disease through biting.*" We italicise the statement for the information as telegraphed is by no means conclusive. Nothing will prove transmission except the actual conveyance of the disease to man or other susceptible animal by means of this method. The observation is a solitary one; there is no evidence that the bug had fed only on a kala-azar case, and it had apparently been dead for two days. Other observers have failed to find parasites in bugs collected in the endemic area. Major F. P. Mackie examined the alimentary tracts of 1512 wild bugs from kala-azar houses in Assam with a negative result. We may usefully bear in mind also that, according to França, leishmania-like bodies (*Herpetomonas davidi*) cause a disease of several species of euphorbia. The parasite lives in the latex of the plant; multiplication takes place in the alimentary tract of the plant bug (*Stenocephalus agilis*), the parasite passes to the salivary glands and thence to a healthy plant. According to C. M. Wenyon, leishmania-like flagellates have not so far been found as a natural infection in the alimentary tract or elsewhere in the common bug, although frequent in the flea, biting flies, sand flies, mosquitoes, and other blood-suckers. Mrs. Adie's discovery of *Herpetomonas* forms in large numbers in a wild-caught bug, particularly in the salivary glands, should be read in association with facts such as these. The full details when they reach us will deserve the most careful scrutiny.

ADEQUATE DIET IN EGYPT.

AT the request of the Department of Public Health in the Egyptian Government an investigation has been carried out during the last three years by Dr. W. H. Wilson, professor of physiology at the Cairo Medical School, into the nutritive value of the rations issued to officials and employees in the various Administrative Departments, the results of which have now been published.[1] Fifty-seven groups of individuals are given distinct ration scales, of which 38 receive full daily rations. Dr. Wilson takes Prof. E. H. Starling's "ordinary work diet" of protein 100, fat 100, and carbohydrates 500 g., as a standard, though with some doubts as to the protein sufficiency, "unless it contains the proportion of animal protein generally

[1] Reports of the Public Health Laboratories. Cairo: Government Press. 1921.

present in the diet of well-fed Europeans": this depends entirely on the quality of the protein, which he terms its biological value—that is, the relative proportion absorbed. He instances a convict diet "for light labour," with a gross protein of 110·6 g., and a (protein) biological value of 33·5, as compared with a Waqfs Hospital ordinary diet containing protein 83 g., with a corresponding value of 50·2. In the former the protein is entirely of vegetable origin, except for 6·3 g. derived from meat; in the latter there are 70 g. meat (without bone) and 200 g. milk, also 60 g. cheese, these three items contributing 35·5 to the total 83 g. gross protein. With regard to fat, Dr. Wilson would "suggest tentatively" that "the minimum for any [adult] diet should not be less than 30, for light work 35, and for moderate or 'hard' labour 45 g. daily." Stress is laid on the importance of a proper distribution of nutritive value in the various meals, especially in regard to breakfast: in prison diets, the breakfast at 5.30 A.M., consisting of bread, contains 22 per cent. of the total food value; "it is physiologically unsound that adult men should be engaged on heavy labour for six hours on so small a ration, especially as the meal contains no fat." In the school diets for girls breakfast contains 24 per cent., and in those for boys 27 per cent. of the total calorie value; but in those for schoolmistresses, and at the school of domestic economy, the breakfast contains only 19·6 and 19 per cent. respectively, and some improvement is desirable. Many other points are dealt with in this report, which should be of great value to all concerned with dietary matters in tropical and subtropical countries; the actual food quantities contained in the dietaries of schools, training colleges, hospitals, asylums, and prisons, and for soldiers and sailors, are given in full detail; together with a most comprehensive series of chemical analyses of the food articles supplied, with an estimate of their dietetic value, in a series of over 60 tabular statements.

RED CROSS CLINICS FOR CIVILIAN PATIENTS.

FOR some time past a scheme has been under consideration whereby the Red Cross clinics which have done such useful work for pensioners should continue their activities on behalf of the civilian population, when their present sphere of usefulness expires. In this matter the interests of patients, of medical men, and of practising masseurs all require attention, and we have already enunciated[1] certain necessary safeguards. In another column appears a letter announcing the opening of the Kensington Red Cross clinic to civilians, and we are glad to note that apparently all the safeguards, which seemed to us so essential, have been adequately secured. That the patients will receive the treatment most applicable to their needs is provided for by the appointment of a specialist in physical treatment as medical officer in charge of the work. No treatment will be given except under his direct orders; and thus the danger of such calamities as giving radiant heat or ionisation instead of manipulation and support for sacro-iliac strain, or exercises and massage for acute flat-foot when this is the result of acute rheumatism will be obviated. As no patients can be received at the clinic unless sent by their own medical man, the doctors in the district need not fear what they might properly conceive to be an encroachment on their rights and privileges were the clinic to be open to all-comers. Then, too, they are distinctly told that the clinic is to be for the service of those only who are unable to pay for the special treatment required from a private masseur; but, in order further to safeguard the latter, an almoner, with the support if need be of a strong committee, will be appointed to consider the financial arrangements made with the patients. Hitherto physical treatment has been available only for the rich at home or the poor in hospital. If the present scheme proves a success, those of moderate means will now be able to secure the benefit of what is, in many cases, the only means which will secure relief. The object of the clinic will not be to afford only treatment for orthopædic cases: the scope of physical treatment in medicine and general surgery is wide and even extends into the realm of other branches of special surgery, of gynæcology, and of obstetrics. It is the hope of those who have the responsibility for this scheme that they may work harmoniously with all concerned, and coöperate with other agencies such as the infant welfare centres.

[1] THE LANCET, 1921, ii., 352.

VIRULENT AND AVIRULENT DIPHTHERIA BACILLI.

THE relationship of strains of *B. diphtheriæ* capable of killing guinea-pigs to those which do not affect the animal injected is one of perennial importance. Public health authorities are often faced with the problem whether strains of *B. diphtheriæ* which are avirulent when tested in guinea-pigs are really capable of causing diphtheria, and whether the carrier of avirulent bacilli is a potential danger to the community. The Section of Epidemiology of the Royal Society of Medicine discussed the question recently.[1] The problem is being actively attacked by many workers in Baltimore, notably C. G. Guthrie, B. C. Marshall, and W. L. Moss, and in London, where Dr. A. J. Eagleton and his co-workers have greatly facilitated investigations by the introduction of a modification of the intracutaneous method of Neisser. This allows of many tests being done on one animal and apparently gives reliable results.

At the Pathological Section of the Royal Society of Medicine on Jan. 17th, Dr. Eagleton, Mr. A. T. Glenny, and Miss M. Baxter described the results of an examination of swabs from 150 patients convalescing from diphtheria. *B. diphtheriæ* were present in 15 cases and isolated in 14, all but one of the strains obtained being virulent. By the routine swabbing of "contacts" and school children, 80 carriers of virulent bacilli were found. Eventually the throats of all of the 80 became free from *B. diphtheriæ*, as proved by two or more negative swabs, but three of the patients, before becoming free from bacilli, yielded an avirulent strain. Possibly this was an instance of infection with an avirulent bacillus after the virulent one had disappeared. Double infection with virulent and avirulent strains must be very uncommon, since, amongst 40 children, though many colonies were taken from each culture-plate inoculated from the swabs, a double infection was not once met with. It is possible, of course, that double infection may occasionally be missed by the ordinary culture methods; one culture, presumed, after reasonably careful examination, to contain nothing but the Hoffmann bacillus, had a minute number of true virulent *B. diphtheriæ* which grew freely in subcultures made many weeks later. A carrier who yielded virulent bacilli, and a month later avirulent bacilli only, was subjected to further study. If true mutation occurs, one or other of these two cultures might have been supposed to contain a mutant. The last virulent culture, and the first avirulent culture obtained from this carrier, were studied intensively by repeated subculture on ordinary media, and in serum both antitoxic and normal. Yet though more than 200 colonies from these subcultures of the two strains were tested for virulence, the virulent and avirulent bacilli remained true to type. This result suggested an investigation as to whether avirulent strains produce in animals any immunity against diphtheria toxin; work still in progress seems to suggest that no immunity is produced. This work, which confirms and amplifies investigations reported by many previous writers, suggests that, in vitro at least, the two strains of bacilli, virulent and avirulent, remain always true to type; also that the avirulent bacillus does not cause diphtheria and that it does not change in the human throat to the virulent variety, the true disease-causing

[1] THE LANCET, Feb. 4th, p. 227.

organism. Further, the Baltimore workers have recently applied[2] avirulent bacilli obtained from a carrier to the throats of a group of people, one of whom was certainly non-immune, without producing an attack of diphtheria; and have, moreover, applied to the throats of a group of volunteers a culture of a virulent bacillus obtained from a healthy carrier. In four of these subjects, who were not naturally immune, frank clinical diphtheria resulted. It is true, as the authors themselves point out, that the six or eight volunteers available for the experiment did not constitute a large group. But the enviable opportunities which Americans appear to be able to make for completing on the human volunteer research work carried out previously with animals, makes it likely that the important crucial experiment, consisting of the inoculation of a large group of non-immune men with avirulent bacilli without causing clinical diphtheria, will be reported in the near future. If this experiment is carried out successfully the view that the avirulent bacillus is of no importance to those charged with the administration of public health will be definitely established. The present position appears to be that, while some epidemiologists would absolve the avirulent bacillus from the charge of causing diphtheria, without a stain on its character, the more cautious, while admitting that the bacillus is probably not guilty, would bring in a verdict of "Not proven."

DRUG STANDARDISATION AND THE LEAGUE OF NATIONS.

ON several previous occasions reference has been made in our columns to the importance of approximating the standards employed in different nations. Now that medical journals from all parts of the world are on the tables of medical libraries there is need of a nomenclature common to all countries. In present conditions the fear of misinterpreting of symptoms and doubt whether remedies, highly vaunted in foreign lands, have their exact counterparts in the home country prevent practitioners from taking full advantage of experience gained outside their own boundaries. The names of remedies may be similar, or even identical, but the certainty that they are of the same strength, the same standard of purity, and that their doses correspond is lacking. For these reasons every advance towards the approximation of the standards employed must be welcomed.

One of the first serious efforts in this direction was made some 20 years ago, when an international conference held in Brussels considered the steps necessary to promote the unification of the formulæ for potent drugs and preparations in the several national pharmacopœias. The International Agreement, adopted in 1906, which was the outcome of this conference, has been loyally observed in most of the various national pharmacopœias since issued, and although it has led to the shifting of some ancient landmarks, it has tended towards greater safety in countries foreign to the prescriber. Over and above the alterations due to this International Agreement, it was indicated in the preface of the new Pharmacopœia of Great Britain, and in that of the United States, that there had been some informal interchange of ideas during their preparation which had led to important innovations. The Committee of Revision of the Pharmacopœia of the United States has now, however, addressed an official letter to the General Medical Council inviting the coöperation of the Pharmacopœia Committee and suggesting measures by which it is hoped that greater uniformity of standards and processes may be attained. This cordial offer has been welcomed warmly and accepted. While it is improbable that an identical plan will be adopted in framing these official publications, it is certainly to be hoped that when the names of important drugs or of their preparations are identical, the descriptions of their physical properties and strengths will be found to coincide. It is evident from these communications that there is every desire to prevent any wide divergence. Since the Brussels conference legislative measures have been introduced in different countries with the object of controlling the indiscriminate and improper use of many remedies, and it is desirable that all such measures, primarily intended to safeguard the public, should be based on similar principles.

Every new law involves inevitable interference with previous liberty of action in some form, and therefore is not necessarily offered a unanimous welcome when it first comes into operation; it may even provoke a storm of protest which might have been averted by an appreciation of the fact that the anticipated inconvenience had already been faced and surmounted by other nations. The Dangerous Drugs Act affords one of the best examples of recent legislation resulting from the International Agreement and from the League of Nations. Its counterpart had already been adopted in the United States, and the Act would probably have been accepted with more readiness if this fact had been appreciated by all the interests affected.

[2] Guthrie, Marshall, and Moss: The Johns Hopkins Hospital Bulletin, 1921, vol. xxxii., No. 360.
[3] Ibid., 1921, vol. xxxii., No. 370.

A CURIOUS NEURO-MUSCULAR PHENOMENON.

UNDER the title "Un curieux phénomène d'automatisme chez l'homme," A. Schwartz and P. Meyer[1] describe the well-known experiment in which the observer stands beside a wall, so that the wall is on his side. The arm is hanging at the side, palm inwards. For 10 to 15 seconds he pushes hard against the wall with the back of the hand, and then relaxes all effort and steps away from the wall; the arm, of its own accord, slowly rises to a more or less horizontal position. The rise of the arm can be inhibited by an effort of will, and the authors state that string galvanometer records of the deltoid show that the oscillations during the involuntary rise are similar to those seen during the preceding voluntary effort; they conclude, therefore, that the phenomenon has a nervous origin. In the October number of *Physiological Abstracts* it is stated that the phenomenon was almost simultaneously studied by a Dutchman, J. Pinkhof,[2] who confirms the observation with the string galvanometer, and states that the phenomenon was first observed by Kohnstamm.[3] But according to Schwartz and Meyer, the real discoverer is a more humble soul, whose name will probably be lost to posterity, for they state that, from information which they have received, the phenomenon "servirait de jeu aux élèves de certains collèges en Angleterre" from of old. The editor of *Physiological Abstracts*, in fact, describes the phenomenon as "a well-known drawing-room trick in this country." The explanation of this seemingly simple experiment is obscure. Schwartz and Meyer think that it might be explained along the lines of some work by Hoffmann,[4] who showed that spinal reflexes are facilitated by a volitional effort (presumably as the knee-jerk is), especially if similar arcs are involved; in consequence of this facilitation, the efferent arcs of the cord would be so sensitised that normal afferent impulses on which postural tonus is based would produce an abnormally great after-discharge along this same efferent path. In a letter to *Nature* for Dec. 22nd, Prof. T. Graham Brown eliminates the possibility of it being due to suggestion, or to a "tonus remainder," and inclines to the view that the movement is probably associated with the activity of the red nucleus, or other mid- and hind-brain structures concerned in slow postural movements. It is possible, he thinks, that the voluntary and the "red nucleus" mechanisms are both set in action to begin with: when the one is cut out voluntarily, the second persists for a while. Or, alternatively,

[1] Comp. rend. soc. biol., 1921, lxxxv., 490.
[2] Ned. T. v. Geneesk., 1921, lxv., 437.
[3] Neurol. Zentrlbl., 1915, p. 290.
[4] Ztschr. f. Biol., 1918, lxviii., 351.

the voluntary effort may inhibit the red nucleus mechanism, and when the former is fatigued, the latter asserts itself by way of a rebound phenomenon. That the phenomenon is one of general application to muscular effort seems clear. Prof. Graham Brown remarks that the peculiar feeling of instability experienced after depositing a heavy load—e.g., a knapsack—may be of a similar nature. J. H. Shaxby, in a later issue of *Nature* (Jan. 19th), points out that a similar phenomenon can be seen with the leg; we have tried it with the forearm, pressing the hand upwards on the edge of a table, with the elbow resting on the thigh, and have obtained a good result.

GANGRENE OF AN EXTREMITY AS A COMPLICATION OF PNEUMONIA.

IN view of the extreme rarity of arterial thrombosis or embolism occurring in an extremity as a sequela of pneumonia, a case recently reported by Drs. W. D. Wise and E. E. Mayer [1] is of some interest. The authors, who have made a careful search of the literature for the past 25 years, have found very few reports of cases of this condition, the 12 that were noted including three by Gibson in 1903, who found no mention in the literature of any other, one case seen by Osler and four referred to by him—Kredel's case of popliteal thrombosis, Seidelmann's of gangrene of the fingers and thumbs of both hands, Hjelt's case of embolism of the abdominal aorta, and Aldrich's of embolism of the lenticulo-optic artery; two instances mentioned by Frazier in Keen's "Surgery," and two reported by Dr. W. F. Lockwood and Dr. Mercur, of Pittsburgh, in personal communications, in one of which, however, there was a possibility of an associated endocarditis. The present case was that of a girl of 7 with a typical lobar pneumonia of the left lung, who, four days after the crisis, when convalescence appeared to be normal, suddenly developed a severe pain in the left leg just above the knee. By the next day there was great discolouration of large areas in the leg, extending to and including the toes, no pulsation being felt in the leg or foot. The gangrene was of the typical dry type, and rapidly increased, a line of demarcation forming immediately below the knee. Amputation was performed just below the middle of the thigh, no tourniquet being used in the operation. No thrombi were seen in the vessels at the point of amputation, the blocking being apparently high in the femoral artery. The authors briefly discuss the ætiology of the condition, especially with regard to the question as to whether the pulmonary lesion might have been an infarct, but they conclude that in the absence of any heart lesion the straightforward history of pneumonia followed by arterial embolism or thrombosis is clearly cause and effect.

THE SOLDIER'S LOAD.

IN concluding, in the *Journal of the Royal Army Medical Corps* for January, his memorandum on the soldier's load, Major N. V. Lothian [2] tells us that at the time of the Crimean War the soldier, wearing an awkward equipment, carried from 57 to 68 pounds. As Parkes said later, no great marches have ever been made by men so loaded. Henderson, in his "Life of Stonewall Jackson," described how the soldiers in the American Civil War devised a practical kit; once they had taken to living in the open, overcoats were soon discarded, blankets and waterproof sheets were worn rolled, and the indispensable haversack carried all necessaries. So equipped, they marched 14 miles a day in the Shenandoah Valley for six weeks. In Ashanti the British soldier marched with only a light kit; greatcoat and spare clothing were carried for him. In South Africa Lord Roberts lightened the kit, and proceeded to make the infantry march as never before, not caring if officers and men had their regulation baggage with them every day; thus they were able to pursue and capture Cronje. Before the recent war the British soldier's load was 59½ lbs., but when grenades, steel hat, fur coat, &c., were added, it came to 80 lbs., broke down many of the less fit, and by physical exhaustion reduced marches to from 5½ to 7 miles—even with the stimulus of victory. In the retreat from Mons, our men threw away luxuries first, and later even their greatcoats. Probably one of the finest marches in history will be recognised to be that of the Serbs to Belgrade in 1918, conducted by light divisions of six-year veterans, carrying only absolute essentials. It seems likely that the maximum weight to be carried by a soldier without breaking down is about one-third of his weight (10-stone man—47 lbs.). In practice he is loaded heavier than a mule: a mule of 1100 lbs. carries 350 lbs., and a cavalry horse only 28½ per cent. of its weight. Possibly weight should be more considered in recruiting than height. The true instinct of Parkes led him to advise that no youth should be accepted whose age, height, and weight were under 18 years, 62 inches, and 112 lbs. respectively. The equipment once chosen, the soldier should be trained to carry his whole equipment over long marches, as Wellington advised, and as the French and Germans practised before the late war. Yet in advancing into Belgium the Germans, carrying 60 lbs., threw much of their kit away, while many fell, fainting or dying, by the roadside; their good marching, however, did much to win them their Russian campaigns. In war the soldiers' aim is to anticipate the enemy, hence great commanders have always developed light divisions. The lighter equipped an army is, the fewer men will fall out, and the stronger will it be at the decisive moment. Major Lothian has our thanks for his careful study of, and luminous report on, the unwisdom of overloading the soldier, even with the purpose of increasing his comfort.

DISSECTING ANEURYSMS OF THE AORTA.

IN a review of the literature with a report of four personal cases in patients, aged from 50 to 71, admitted to the Cook County Hospital, Dr. P. D. Crowell,[1] of Chicago, remarks that Mannoir was the first to give the name of dissecting aneurysm to the condition in 1802. In 35 per cent. of the 215 cases reviewed by the writer, in which the state of the aortic lining was described, there was advanced sclerosis with ulceration and calcification; in 42 per cent. there was a marked or moderate amount of fatty change or fibrous plaques, and in 9 per cent. only a few such plaques. In about one-third of the remaining 14 per cent. the aorta had a thin wall or dilated lumen or both; in 16 the vessel was thought to be normal. In 80 per cent. of the 215 cases the age was 40 years or more, the extreme limits being 13 and 95. The condition was 1·64 times more frequent in men than in women. In 52 cases in which the state of the kidneys was noted chronic nephritis was found in 66 per cent. The progress of the disease has been divided by observers into three stages, the first being rupture of the internal coats of the aorta, the second dissection and possible rupture externally, and the third, recanalisation. According to this division 86 per cent. of the cases collected by Dr. Crowell ended in the second stage, and 14 per cent. in the third stage. The origin of the aneurysm is almost always in the ascending portion of the arch, usually just above the aortic cusps. In most cases there have been multiple tears, usually from 1–3 cm. long, but the whole circumference of the vessel may be involved. The primary rupture is of the intima and most or all of the layers of the media. The dissection takes place in the outer layers of the media or between the media and adventitia. Dr. Crowell remarks that very little attention has been paid to interference with the circulation in the branches of the aorta caused by splitting of the walls where these branches arise, and

[1] Annals of Surgery, November, 1921.
[2] THE LANCET, 1921, ii., 917.

[1] Journal of the American Medical Association, Dec. 31st, 1921.

that the failure to recognise dissecting aneurysm of the aorta during life is partly at least due to inability to appreciate the fact that symptoms of the condition may be produced by interference with the blood-supply in these branches. Rupture of the pericardial sac which occurred in 45 per cent. of the cases is manifested by sudden and severe pain in the chest and collapse. If death does not take place in a few moments, partial recovery occurs, but is followed within a few hours or days by a similar pain with almost immediate cardiac and respiratory failure. Reference is made to cases in which paralysis ensues, being probably due to interference with the blood-supply of the spinal cord or brain. In one of Dr. Crowell's cases there was flaccid paralysis of the legs and right arm and spastic paralysis of the left arm, and in another left hemiplegia. In other instances interference with the intestinal blood-supply may lead to the performance of laparotomy because of the diagnosis of "surgical abdomen."

SIR THOMAS BROWNE'S SKULL.

A SOMEWHAT peculiar controversy which has lasted for many years between the board of the Norfolk and Norwich Hospital, and the vicar and churchwardens of St. Peter Mancroft Church, Norwich, has at last reached a satisfactory conclusion. The controversy concerns the skull of no less a person than Sir Thomas Browne, the author of Religio Medici and other works, who died in 1682. This famous Norwich citizen was buried in the precincts of the splendid church of St. Peter Mancroft, where a monument has been erected to him. His skull was by some means or other stolen from the grave in 1840, and a few years later it found its way to the Norfolk and Norwich Hospital, and was placed in the museum, where it has been ever since. The vicar and churchwardens of St. Peter Mancroft have, for a considerable time, been anxious to have the skull restored to its original resting-place, but the hospital authorities were unwilling to part with such an interesting relic of an ornament of the medical profession. However, the matter has at last been amicably settled by a resolution of the board of governors of the hospital at their last quarterly meeting: "That the skull shall be handed over to the church, on condition that it shall be reverently re-interred as soon as possible in the church near the supposed site of Sir Thomas Browne's grave, with the burying place suitably marked, and that before the skull is handed over a plaster cast of it shall be presented to the hospital authorities, and that it shall not be exposed in any way to the public as a relic of Sir Thomas Browne." These conditions were accepted by the vicar of St. Peter Mancroft, Canon F. J. Meyrick, so that it may now be hoped that Sir Thomas Browne's bones will at last rest in peace.

DIFFERENT FORMS OF PROTEIN SENSITISATION.

MUCH interest is being evinced in the group of anaphylactic affections of which hay fever and urticaria are the best known examples. Dr. Arthur Latham, in an address which we print in our present issue, refers to the instability of body-chemistry which is the feature common to the whole group. He deals principally with the case of bronchial asthma on which we recently commented [1] in the light of current American work. Dr. Latham, while he admits that we do not know in the least what hypersensitiveness means, finds that our knowledge of it has already definitely improved the outlook for the asthmatic person. Several important implications of protein sensitisation were dealt with in the October number of the *Guy's Hospital Reports* for 1921 by Dr. H. W. Barber in a thoughtful paper on the ætiology of certain skin affections in relation to focal sepsis and sensitisation. Urticaria and erythema have, of course, long been recognised as frequent manifestations of protein hypersensitiveness, but Dr. Barber enlarges this list by including herpes zoster, lupus erythematosus, psoriasis, and several forms of eczema and dermatitis; and he points out by illustrative cases the relationship which he believes to exist between protein sensitisation and focal sepsis in the form of dental caries, pyorrhœa, and unhealthy tonsils. Judged from this standpoint, which we believe to be a right one, these skin affections can no longer be regarded as clinical entities, but must rather be looked upon as prominent symptoms of a protein hypersensitiveness due to a number of causes, bacterial and dietetic. Other examples of this "acquired local susceptibility of the skin" are also given.

Furthermore, Dr. Barber raises two interesting points which will doubtless become more familiar as we study the question more closely. The one is the frequency of cross-sensitisation—a patient hypersensitive to one protein may give a positive reaction to another kind—a fact which has been made use of by Widal, Auld, and others in the treatment of asthma; and the second is the possibility of an hereditary factor underlying certain types of protein sensitisation. It is easy, of course, to blame heredity for troubles we do not understand, but in this particular instance we think a certain amount of proof could be adduced in support of the view. Be that as it may, it is clear that the whole question of anaphylaxis is one which cuts across the old-established boundaries of clinical medicine, bacteriology, and biochemistry. We must all of us be personally interested in a matter which plays such an intimate part in our daily lives as protein sensitisation appears to do. Dr. Barber's article opens up many by-paths. The question of the mode of action, if any, of non-virulent or feebly virulent bacteria found in so many of these chronic septic conditions needs much elucidation; whilst the relation of bacterial anaphylaxis to the rashes of some of the acute exanthemata, a subject discussed by McIntosh [2] some years ago, is another debatable point. The trouble is that anaphylaxis appears to be protean in its manifestations, and we do not know where and how to limit our correlation of the observed facts.

Prof. Henri Hartmann, an honorary Fellow of the Royal College of Surgeons of England, will give an address on Inflammatory Strictures of the Rectum before the Medical Society of London, on Monday, Feb. 13th, at 8.30 P.M. As professor of clinical surgery at the University of Paris Dr. Hartmann has paid special attention to abdominal and rectal surgery, and his address will be based mainly on his own large experience. The address will be given in English, with epidiascope illustrations. There will also be an exhibition of specimens of inflammatory stricture of the rectum from various London museums, on view before the lecture and on Tuesday morning.

A MEETING of the General Nursing Council for England and Wales was held on Feb. 3rd, at which Sir Wilmot Herringham presided for the first time since his appointment to succeed Mr. Priestley. All the members who resigned with the late chairman have now withdrawn their resignations, and the Council has resumed its normal activities. In view of various unauthorised and unfounded statements which have been made, Sir Alfred Mond thinks it desirable to state that these resignations had nothing to do either with the question of the syllabus of training or the question of the entry of certificates in the register. There is, further, no foundation for the suggestion that there has been any controversy between the Council and the Minister; the relations between the two have been uniformly cordial.

[1] THE LANCET, 1921, ii., 1174.

[2] Quarterly Journal of Medicine, 1913–14, vii., 272.

PLAGUE, CHOLERA, AND TYPHUS IN TURKEY AND ADJOINING COUNTRIES.

A TWELVE MONTHS' RECORD.

BY F. G. CLEMOW, C.M.G., M.D.,
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Constantinople, Nov. 10th, 1921.

II.*—CHOLERA.

DURING the year 1920 no case of cholera would seem to have occurred in any part of Turkish territory, and the same statement fortunately holds good for the first ten months of the present year.

The records of cholera in South Russia have throughout been very imperfect and unreliable. In my letter published in THE LANCET of Dec. 11th, 1920, figures were quoted for the epidemic in the Crimea down to July 28th of that year. In the week ending August 4th, 5 cases (and 21 suspected cases) were recorded. There is then a gap in the returns, but in the week ended Sept. 23rd there were 66 cases, of which 53 were ascribed to the district of Yalta, and the others to Theodosia, Simferopol, Yalta itself, Djankoi, and Kertch; and in the week ended Oct. 9th (*sic*) there were 6 cases at Kertch, 1 at Sevastopol, and none elsewhere. At Vladikavkaz, in the Caucasus, a considerable number of cases occurred in the autumn of 1920; and at Tiflis 78 cases had been recorded before the middle of November. Later it was stated that no cases had occurred in Tiflis after the end of November.

In the present year (1921) there has undoubtedly been a widespread epidemic of cholera in many parts of Russia, but the true facts are not easy to ascertain. At the end of May last a steamer arrived in Constantinople that had left Novorossiisk on May 28th, and her bill of health showed that 2 cases of cholera had occurred there between May 23rd and 26th. But this was apparently not the earliest record of the appearance of the disease. In August last a Russian medical official in this city made a statement concerning the epidemic which throws some light on the subject, though the documents quoted (Soviet publications) are remarkably contradictory and lacking in clearness. These official bulletins affirmed that cholera had been present in South Russia since the beginning of the year; that it caused no great ravages in the winter and early spring, during which period it was present in the N. Caucasus, the basin of the Don, and the government of Tambof. From Jan. 1st to May 15th (the dates quoted throughout must be assumed to be Old Style dates) 1420 cases were recorded, and between May 15th and June 25th 4570, making a total of nearly 6000. In May the disease was said to have taken on a wide extension in the regions of Rostof and Novocherkask, in the territories of the Kuban and Don, and in the basin of the Donetz. On the railways cases were seen in persons coming from the south, and the Ukraine railways were declared infected. The Public Health Commissary was quoted as having (on May 12th) grave apprehensions for the future. The towns and villages, he admitted, were in a filthy condition; water-supply systems had been very generally destroyed. Moscow, in particular, was said to be without water and the inhabitants were drinking ditch-water. On May 21st the first cases were said to have been seen in Moscow. In the middle of June the epidemic at Rostof was so severe as to be described as a public calamity. The disease was spreading rapidly, for lack of means to combat it, through the southern areas—Samara, Astrakhan, Saratof, and all the basin of the Volga, the lands of the Kirghiz and Kalmucks, and centres of infection had formed at Vladikavkaz and Tiflis in the Caucasus. By the end of June, if a report from Helsingfors were to be believed, the epidemic in Moscow was of extreme severity, as many as 2000 cases occurring daily. This was possibly an exaggeration; the Soviet bulletin of June 25th only admitted the occurrence of 99 cases in the city of Moscow and 94 in the government of that name. The Soviet Public Health Commissary is quoted as saying that, up to June 26th, the regions most affected were the Kuban territory and Black Sea littoral, the Don territory, the governments of Saratof, Voronezh, and Orel, and the basin of the Volga; isolated cases were also occurring in the Ukraine, at Kharkof and Kief, and at Taganrog. About this time it was affirmed that at Rostof 800–1000 cases with 400–600 deaths were occurring daily; that at Astrakhan 250 cases and at Samara 150 were being registered each day, while the number of unregistered cases was still greater, as the people hid the sick.

On July 1st it was reported that many cases ("plusieurs dizaines de cas"), with a mortality of 70 per cent., had occurred in the "commune of the North," which is apparently the government of Petrograd. The Soviet bulletin of July 17th is said to have admitted that the disease was still spreading and that on July 12th cases had been registered on the Orenburg-Tashkent Railway, and also at Ufa, Perm, Tcheliabinsk, and Petropavlovsk, while isolated cases were occurring in the governments of Vitebsk, Smolensk, and others. A Soviet bulletin, quoted in the *Novoé Vremya* of July 20th, estimated the deaths from cholera for all Russia at "tens of thousands" per day, but this statement again must perhaps be taken with caution. The contradictory nature of the official bulletins has been mentioned already, and in proof of this statement it may be pointed out that while on one occasion the number of cases to June 26th was placed at nearly 6000 (the figure quoted above), on another the total to June 20th only was put at the high figure of 36,298. (And even this figure is unreliable, for it was said to be made up of the following items: January to March, 269; April, 611; May, 1506; June–July (*sic*), 22,694; which would give a total of 25,080 only.) The bulletin of August 1st further affirmed that in the Russian "Republic"—excluding the Ukraine and "other Soviet Republics"—49,428 cases of cholera had occurred down to July 2nd. In the Ukraine, the governments of Kharkof and Ekaterinoslav were said to be most severely affected, over 1000 cases having occurred in each in the month of June. In addition (apparently) 8446 cases had been registered on the railways and 1449 in the army. The official bulletins quoted in certain Reval papers of August 9th stated that cholera was prevalent in 24 provinces, including those of Podolia, Kief, Volhynia, Poltava, Tver, and Smolensk; and that 150,000 deaths from the disease had occurred in May and June. A statement published, it is said, in the *Times* of July 20th, to the effect that cholera had already spread from Transcaucasia to Anatolia (Asia Minor), has not so far been confirmed here, but this does not of necessity imply that it was incorrect.

It is obvious that the figures above quoted have only a relative and doubtful value, save as showing how widespread and serious the epidemic has been. It is admitted by the Russian authorities themselves that very large numbers of cases escaped registration. There are probably large areas where no official registration was even attempted. There would seem to be an appalling lack of medical aid in the stricken regions, and one authority has affirmed that there was only one medical man to every 5000 patients, one assistant doctor (probably a "feldscher") to every 4000, and one nurse to every 3000, figures which seem scarcely credible. Serious cholera riots are said to have occurred in the provinces of Saratof and Samara (a wireless message of July 2nd), at Astrakhan (on July 23rd), and at Atkarsk, where the municipal hospital was said to have been destroyed.

The following official table, purporting to give the figures for all Soviet Russia for the month of June, may perhaps be quoted—not for the value of the figures, but as showing how widely the epidemic had

* Part I., Plague, appeared in THE LANCET last week.

extended, even including the northerly government of Archangel:—

	Cases.		Cases.
Saratof	5648	Tambof	1866
Astrakhan	4961	Ufa	1663
Samara	2417*	Tsaritsyn	2097
Voronezh	3375	"Tartare"†	1679
The Don	1390	Moscow	538
Kuban and Black Sea	2788	Nijni Novgorod	615
Kursk	2149	Petrograd	12
Orel	2689	Archangel	11
Simbirsk	1330		

* Figures incomplete. † ?Among the Tartars.

The percentage mortality was put at from 80 to 90.

In the Caucasus, Batoum was undoubtedly infected in July; in August, 20 to 25 cases with 10 to 12 deaths were said to be occurring there daily (others said 30 to 35 cases daily). At Tiflis over 200 cases were reported to have occurred before the middle of July, and 34 new cases were registered there between July 11th and 25th. At Petrof there were 165 fatal cases in five days at this period. At Derbend 87 cases and at Baku over 250 cases were recorded between July 11th and 25th. By the end of July the epidemic was declining in the Caucasus; at Batoum only 2 or 3 cases were occurring daily, and at Tiflis the epidemic was reported as "circumscribed." Early in September a recrudescence of the disease in South Russia was spoken of, but without any details. Finally, the bill of health of a steamer arriving in Constantinople from Odessa showed that 7 cases of cholera had occurred in the latter port on July 21st, and that of another mentioned 7 cases on August 4th (probably, however, the same 7 cases, with a confusion between Old and New Style dates). Later bills of health indicated that there had been 14 cases of cholera in Odessa on Sept. 2nd and 1 case on Oct. 8th, while at Nikolaief 1 case had occurred on Sept. 30th.

The epidemic in South Russia has undoubtedly been favoured by the prevalence of a disastrous famine in the same regions, and infection is said to have been widely spread by the movements of persons attempting to flee from the famine-stricken districts.

The measures put in force to meet the epidemic are not without interest. The principal ones are said to have been the following:—

1. Cessation of communication with the Lon region, and particularly with Rostof, for the purpose of obtaining food-supplies for more northerly provinces.
2. Cleansing of sources of water-supply.
3. A "Water and Cleansing Week," with compulsory labour ("Semaine de corvée d'eau et de nettoyage") at Moscow; this appears to have been really of two weeks' duration—from June 5th to 18th.
4. Repairs of the water-supply system at Moscow—in reference to which, however, the *Red Gazette* is quoted as remarking that, to judge by the rate the work was progressing, 80 years would be required to complete the repairs.
5. Repair of baths, provision of public supplies of boiled water; removal of rubbish; the summoning of all persons to take part, en masse, in the cleaning up of towns and villages.
6. Appointment of an "Extraordinary Sanitary Triumvirate," composed of a doctor, a communist, and a "Tchekist" or member of the Extraordinary Commission for Combating the Counter-Revolution, with powers of dictatorship.
7. Anti-cholera inoculations, accepted, it is said, only by the intellectual classes, the "people" being hostile to them. Inoculation, however, was said to be compulsory for medical staffs, railway personnel, escorts of food transports, persons engaged in removing cholera patients, removal of rubbish, and so forth.
8. Appointment, on July 2nd, of a special cholera Commission at Moscow.
9. Stoppage of railway communication with infected districts from July 21st.
10. The establishment of quarantines from July 19th.
11. The placarding of public notices on walls and kiosks. One such notice is quoted; it is as follows:—

"(*a*) It is forbidden to all inhabitants of cholera-infected districts, as also to those of a zone of 100 versts to the west thereof, to pass from one place to another without permission of the authorities. Persons infringing this rule will be shot on the spot. [An identical measure, it may be recalled, was imposed by Peter the Great, at the time of plague epidemics in 1709 and 1718; it proved quite useless, however, for arresting the march of the disease.]

(*b*) Bodies of persons dead from cholera are to be handed over to special detachments, for immediate cremation.

(*c*) Houses where cholera sick are found will be immediately evacuated, disinfected, or, if disinfection is impossible, burnt."

Mention is also made of a "Cleansing Week" in Petrograd, from May 20th to 27th, to be followed by a "Water Week," when the droshky drivers, said to be "on leave at their homes, with their horses," should have returned; but it is significantly added that as the horses only numbered 400, including sick ones, it would be impossible for them to remove the accumulated masses of rubbish and filth, estimated at a total of 14 million poods, or 204 million kilogrammes.

(To be concluded).

CONTROL OF VENEREAL DISEASE.

THE CAMPAIGN IN GERMANY.

AT the nineteenth annual meeting of the Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten (D.G.B.G.), with Prof. Blaschko in the chair, the central theme under discussion was prophylaxis, its technique in men and women, its organisation and propaganda, and experimental research into the effectiveness of prophylaxis. According to the report of this meeting, the excellent plan was adopted of circulating in advance among the audience printed copies of the addresses given by the principal speakers, among whom were Profs. Manteufel, Schumacher, Lesser, Blaschko and Galewsky.

Comparative Value of the Different Prophylactic Measures.

Accounts were given of investigations, conducted under the auspices of the D.G.B.G., into the value of various devices which have hitherto been on a rather empirical footing. In the case of gonorrhœa, Credé's procedure has had such extensive trial that it may be said to have stood the test of a "mass experiment," and the best testimonial in its favour is that it has formed the basis of the present system of prophylaxis with protargol preparations. In the case of syphilis, however, no such "mass tests" of a prophylactic measure have yet been conducted. The great virtue of the condom is that it confers reciprocal protection, and during the discussion Prof. Grotjahn went so far as to declare that the condom was the only reliable device, and that all the chemical preparations ought to be discarded as inadequate. But, as it was pointed out, the condom shares with other devices, intended for use before intercourse, the great objection that it is neglected for psychic reasons: therefore instruction in prophylactic disinfection after intercourse ought not to be neglected. For this purpose a 1 in 1000 solution of perchloride of mercury seems to be the most reliable, whereas Metchnikoff's calomel ointment has fallen into general disrepute. Schereschewsky's 40 per cent. quinine ointment holds a high position in Germany, as does permanganate of potash, although, as was pointed out, proof positive of its effectiveness against syphilis has yet to be adduced. Prof. Blaschko appealed for the simplification of prophylaxis, and for the adoption in general use of only one preparation which should at once be cheap, easily obtained, portable, not subject to decomposition, and easily applied. A commission was appointed to inquire, in coöperation with the Reichsgesundheitsamt, into the effectiveness of the numerous preparations on the market, and to ensure that the uselessness and harmfulness of certain preparations become generally known.

Organisation of Prophylaxis.

In the course of his address on this subject Prof. Blaschko insisted that though personal prophylaxis is eminently a private matter, still it is the duty of the public to see that adequate provision is made for self-protection. As he pointed out, legislation in Germany has hitherto concerned itself little in this

matter, or rather, its chief concern has been to put as many hindrances in the way as possible. As for the comparative value of self-protection and disinfection by experts in ablution centres, he was disinclined to regard them as competing alternatives but rather as complementary, the one of the other. For both courses have their shortcomings. The ablution centre is of little use to the person who cohabits several times in one night, and there are obvious difficulties in the way of establishing ablution centres in any but large towns. Here they are invaluable. For in addition to the immediate benefit obtained by ablution, there is the teaching of personal prophylaxis. A man who has been twice or thrice to such a centre learns how to disinfect himself. Prof. Blaschko showed himself alive to the dangers of attendants at ablution centres developing into quack practitioners, and he considered it unwise to give such attendants instruction in complete irrigation of the urethra, to be undertaken in cases in which a considerable time had elapsed since intercourse. For it would be but a short step from this procedure to the treatment of fully-developed gonorrhœa. He remarked that the ablution centres in Manchester teach the attendants to irrigate the whole urethra, but he considered this a mistake, and urged that when men came to a centre more than six hours after intercourse no attempt at disinfection should be made. He was, however, favourably impressed by the Manchester scheme for investigating the results of prophylaxis, and he suggested that every applicant for disinfection should be given a postcard on which he could, simply by the insertion of his registration number and crossing out one or other of the two words "success" and "failure," register the results achieved, and return the card to the ablution centre.

Propaganda of Prophylaxis.

Prof. Blaschko exhibited the two placards which the D.G.B.G. have placed in the urinals of Berlin. One of these gives in a few lines the salient features of venereal disease and ends by referring the reader to the nearest ablution centre. The second placard is by far the more instructive; it shows diagrammatically by black vertical columns that the effectiveness of disinfection diminishes as the interval between intercourse and disinfection increases.

Control of the Sale of Protective Devices.

The question has often been raised: Shall the sale of disinfectants and other devices be limited to chemists, and shall they be procurable only with a doctor's prescription? As Prof. Blaschko pointed out, it is impossible to take this course, for such chemicals as perchloride of mercury are used for many other purposes. He believes that every effort should be made to render these self-protection devices as accessible to the public as possible, and they should be obtainable in drug stores, shops for surgical appliances and rubber goods, and barbers' shops, but not through automatic machines placed in public buildings. If a proposed new law is put on the statute books, and the restrictions hitherto laid on the sale of self-protection remedies are relaxed, Prof. Blaschko anticipates that much rubbish will be sold and disinfection will be discredited in the eyes of the public. It was to meet this difficulty that he suggested the appointment of the commission already mentioned.

The Feminine Attitude towards Prophylaxis before Coitus.

Both Prof. Blaschko and Prof. Galewsky dwelt on the objections raised in certain quarters by women who fear that, by rendering protective remedies easily available, the D.G.B.G. incites men to indulge in extra-marital relations. It is assumed in these quarters that the disinfectant reposing in a man's waistcoat pocket is a direct call to immorality, and that what these remedies achieve in the prevention of disease is neutralised by the encouragement they give to immorality. Neither of the speakers endorsed this attitude. Prof. Blaschko did, indeed, admit that now and then a man might place such blind confidence in the effectiveness of a disinfectant that he would indulge in extra-marital intercourse which he would otherwise have avoided. But, as a rule, he had found that disinfectants were more prone to remind men of the dangers of sexual escapades than to create a sense of security. And, as Prof. Galewsky remarked, the D.G.B.G. always teaches that the protection given by disinfectants is only partial and conditional. He added: "I believe that the more energetically we impress on the public, and young males in particular, the need for self-protection at every extra-marital coitus, the more will this danger be appreciated, and this appreciation will act as a check on many persons."

Birth Control in Germany Before and After the War.

Prof. Galewsky's comparison of the old law, still in force, with the draft of the new law dealing with the subject under discussion, shows how revolutionary has been the change in the attitude of the authorities towards birth control. According to Section 184, 3 of the old law, the sale of disinfectants and devices calculated to prevent conception was forbidden, and even doctors were not immune from the penalties of the law. The policy which inspired this paragraph was that of keeping up the birth-rate at all costs. But as Prof. Galewsky reminded his audience, birth control is now both a healthy and an inevitable policy for Germany, which has no use for tens of thousands of children who die in the first year of life because they cannot receive proper care.

It will be seen from this summary of the proceedings of the D.G.B.G. that its guiding principles are not identical with those of the N.C.C.V.D.

THE FEEDING OF SCHOOL-CHILDREN IN PARIS.

OFFICIAL figures have been published recently which throw light on many problems concerning the feeding of school-children, as far as Paris is concerned, and taking existing conditions into account. The Prefect of the Seine, the supreme authority in such matters, has been puzzled by the discrepancy which is occurring in the cost of the meals served out to school-children in the various districts, but his inquiry goes far to explain what has happened. Obviously many children in Paris, whose apparent circumstances would have led to no such suspicion, have to be helped in respect to their meals or they would be quite underfed. A mid-day meal is served in all the primary schools in Paris, arrangements for payment being made where the children are not necessitous. Only children, or children in families of two, are required to pay something approximating to the cost price of the meal. Before the war these children used to pay a round sum of 15 centimes for their dinner, though the meal really cost in raw materials more than this, but now it will be necessary to ask them to pay not only the larger sum necessitated by a rise in prices, but some sum which at any rate puts it out of any doubt that no serious loss is incurred on their behalf. Only in this way can the money be found to feed their poorer comrades. The selection of children who should and should not pay is managed with delicacy; every care is taken not to humiliate the child whose parents cannot pay by concealing from general knowledge whose dinner ticket is a gratuitous one. And in some districts the number of children who are helped is unprecedently large.

The present conditions of feeding in France, as in this country, have been largely turned upside down by the war. In the columns of this paper some 15 years ago there appeared the results of a series of investigations made by Mr. Adolphe Smith, acting as a special sanitary correspondent, on the feeding of school-children in France, Belgium, and Italy. This long series of articles was reproduced in pamphlet form, and contributed, as we learned, to the enactment of the Provision of Meals Act, 1906. Mr. Smith pro-

duced a record of the actual feeding of some millions of children of different races and different climates, and thus provided material for the scientific study of the question, and many of the lessons that can be learned from pre-war experience can be applied to existing circumstances with the simple alteration of figures. But the cost of provisions and the purchasing power of money have altered so extensively throughout Europe, and, as the exchanges show, have altered so capriciously, that no municipal authority, embarking upon the feeding of school-children, can have figures before them that can be considered a trustworthy guide. The price to be asked from the families which can pay must be graduated by the exact price of materials in each locality, and that which is cheap, if nutritious, must be preferred. In many cases we can see from Mr. Smith's figures the authorities gave the children what was available, and sometimes in this way reduced the proper standard of nutrition and palatability. But in most parts of France a meal of three courses was provided for 15 centimes, or 1½*d*. Mr. Smith gave full details of these meals, and described the menu day by day, the cost at wholesale prices of the ingredients, and how they were cooked, and measures taken so that each meal should be a lesson in refinement, cleanliness, and polite orderly behaviour. In Paris, in 1898, the cost per meal — the mid-day meal—rose from 15 to 17 centimes, but then the amount of meat allowed was increased from 30 to 40 g. Now the mid-day meals in the Paris schools actually cost as much as 61 to 128 cents. per meal. At the present rate of change this is equivalent to from 3*d*. to 6*d*. in round figures, and the discrepancy between these two figures has caused official inquiries followed by the issue of new regulations. The main feature of the new regulations is that the menu has been subdivided into four sections, giving less than formerly to the younger and more to the older children. The actual amount thus allowed is surely a matter of great practical importance since it affects daily several hundred thousand children. Here, then, is a specimen of the menus. For children under 4 years of age: On Monday, vegetable soup, 200 c.cm.; rice and milk, 100 g. bread, 30 g. On Tuesday, *pot-au-feu*—namely, beef and vegetable soup, 250 c.cm.; pastes, such as macaroni, 50 g.; and bread, 30 g. For children from 4 to 6 years old the menu is the same only there is 25 g. more of rice given on the Monday, and 40 g. of boiled beef added to the soup on Tuesday. For children from 6 to 10 years, the vegetable soup on Monday is followed by 150 g. of mashed haricot beans, 80 g. of beef braised in its own gravy, and 50 g. of bread. On the Tuesday the meat soup is the same, but it is followed by 150 g. of mashed potatoes and 80 g. of boiled beef; bread is now 80 g. The menu is again the same for the oldest children—that is, from the age of 10 to 14—only the meat is increased to 100 g. and the bread to 100 g.; but, in each case, the amount of bread indicated is the minimum. Also the amount for meat is for cooked meat, which is about 30 per cent. heavier than raw meat. Considering the exorbitant cost of food, all the city of Paris can attempt to supply at present is the bare necessities of existence. The dessert, the sweet dishes so much beloved by children, cannot be supplied. But the pupils can bring from home dried fruits, such as figs or raisins and other delicacies that parental love may supply. Where unhappily this is not possible, still the child, however poor and neglected in its own home, is certain of obtaining what is necessary while it is under the care of the authorities.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.—A meeting of this association will be held at 11, Chandos-street, London, W. 1, on Wednesday, Feb. 22nd, at 5 P.M., when Mr. George H. Widdows, F.R.I.B.A., architect and surveyor to the Derbyshire Education Committee, will introduce a discussion on the Ideal Classroom. School medical officers, respresentative architects, and educationists will join in the discussion.

RECENT MEDICAL WORK IN CHINA.

A DESPATCH has been received from Sir Beilby F. Alston, G.C.M.G., C.B., his Majesty's Minister in Peking, regarding recent medical work in China, and in particular the opening of the new medical college in the beginning of September last. We have referred to this function already in these columns, but our readers may be reminded that in September of last year sumptuous new buildings, due to the generosity of Mr. Rockefeller, were opened in the presence of a representative group of European and American medical men, the leading part in the proceedings being played by Mr. J. D. Rockefeller, jun.

Sir Beilby Alston's Despatch.

The substance of Sir Beilby Alston's despatch is as follows:—

"After the Boxer rising, when the need for constructive and educational work on a broad basis was brought home to all friends of China, the first attempt was made to establish a school of medicine on modern lines in Peking. In 1906 the London Missionary Society was joined by two others in the founding of a union school, and shortly after three other societies joined the union, so that the missions concerned were six in number—i.e., the London Missionary Society, in whose name the property was held, the American Board of Foreign Missions (Congregational), the American Presbyterian Church, the American Methodist Episcopal Church, the Society for the Propagation of the Gospel, and the Medical Missionary Association of London. This Union Medical College was the first medical college to be established in China by the combination of both British and American medical men and through the coöperation of missionary societies representing different religious denominations.

The College was recognised by the Chinese Government from the outset, the Board of Education giving a special diploma to all graduates and making an annual grant towards the support of the institution. The College was slowly progressing, when, in 1914, the Rockefeller Foundation despatched a commission to China to study the question of medical education there, with the final result that the China Medical Board took over the whole work of the Union Medical College, purchasing the entire plant and proceeding to re-organise the whole work. The foundation of the new building was laid in 1917, and the dedication of the magnificent new College took place on Sept. 19th this year in the presence of a number of distinguished physicians, surgeons, and scientists from all parts of the world, who had been invited to Peking for the occasion.

Mr. J. D. Rockefeller, jun., whose father's magnificent donations have rendered it possible to establish the Rockefeller Foundation and to include this institution among the schemes by which the funds at its disposal are being used for the benefit of mankind, was the chief guest, having come from the United States to represent his father on this occasion. In the course of his address at the dedication of the Institute, Mr. Rockefeller explained that the purpose of the China Medical Board was to develop in China a medical school and hospital of a standard comparable with those of the leading institutions known to Western civilisation. In this centre it was proposed to offer to the Chinese people facilities for acquiring a thorough knowledge of, and training in, Western scientific medicine. While it was intended that the College should lay emphasis upon the training of promising men and women for positions as teachers and investigators, it was, of course, realised that many of its graduates would enter the service of the community as well-equipped physicians and surgeons.

It was also part of the plan to provide short courses for medical missionaries and Chinese doctors throughout the Chinese Republic in order that they might be enabled to keep up with the rapid strides made by modern medicine, and thereby be helped in the useful medical enterprises which they were carrying on. But above all, it was hoped that this new medical centre might so commend itself to the Chinese people that it would stimulate them to develop similar institutions in various parts of China. For the Chinese Medical Board recognised from the outset that only the Chinese nation itself could cope with a task so colossal as the establishment of modern scientific education throughout the Republic, and that all Western civilisation could do would be to point the way."

Those present at the opening ceremonies included Mr. Rockefeller and his party and representatives of the medical world in Great Britain, France, and Japan, as well as Java and Hong-Kong, and during their stay in the Chinese capital, which lasted just over a fortnight, the medical delegates were entertained by

the Chinese Government and by the British and American Legations, while opportunity was taken of the occasion to hold a medical conference.

The Dedication Exercises of the Peking Union Medical College.

The most important undertaking of the China Medical Board, which has now been in existence for seven years,[1] has been the reorganisation of the Peking Medical College. The dedication exercises, which formed part of the proceedings, were of considerable interest, the principal addresses being as follows:—

Dr. G. R. de Schweinitz, of the University of Pennsylvania: The Evolution of Ocular Symptoms of Pituitary Body Disorders. Dr. Wu Lien Teh, Director of the North Manchurian Plague Prevention Service: Plague in the Orient with Special Reference to the Manchurian Outbreaks. Dr. Francis W. Peabody, of Harvard University: The Clinical Importance of the Vital Capacity of the Lungs. Dr. A. B. Macallum, of McGill University: Biochemistry in Retrospect and Prospect. Dr. Florence Rena Sabin, of Johns Hopkins University: The Origin of Blood Cells. Dr. S. S. Goldwater, Director of Mount Sinai Hospital, New York: The Search for the Ideal in Hospital Organisation. Dr. Tuffier: Osteomyelitis. Dr. Victor C. Rosier, International Health Board of the Rockefeller Foundation: Hookworm Control as a Promoter of Public Health Agencies. Dr. Sahachiro Hata, of the Kitasato Institute for Infectious Diseases, Tokyo: The Present Status and the Future Problems of Chemotherapy. Dr. William E. Welch, of Baltimore: The Advancement of Medicine and its Contribution to Human Welfare. At the Conference of Parasitology a discussion led by Dr. Ernest Carroll Faust: Present-day Aspects of Parasitology in China.

Addresses were also delivered at the various clinical sections of what had become a medical congress; among them the following may be noted:—

In the Obstetrical and Gynæcological Clinical Section, Dr. J. Preston Maxwell, Professor of Obstetrics and Gynæcology, Peking Union Medical School: Interesting Cases of the Year 1920–21; Sir William Smyly, of Dublin: Eclampsia and Eclampsism; Dr. J. G. Clark, of Philadelphia: Radium in Gynæcological Conditions. In the Pathological Sectional Clinic, Dr. Frank G. Haughwout, Manilla: Parasitology in the Philippines; Dr. Wu Lien Teh, of the North Manchurian Plague Prevention Service: Pneumonic Plague; Dr. William H. Welch: Pathological Problems in the Orient; Dr. Henry E. Melanby: Abstract of Cases of Thrombosis of the Superior Petrosal Sinus and Meningitis following Acute Mastoiditis.

Another conference at a combined Surgical and Pathological Sectional Clinic discussed Tetanus Infection from Sores.

Medical Posts in China.

Sir Beilby Alston in his despatch points to the desirability of British medical men coming forward from time to time as candidates for teaching posts in China. The China Medical Board has decreed an open door in respect of these posts, holding that the maintenance of British influence which has hitherto been the leading feature in medical education, not only in Peking, but also in other parts of the country, is desirable and important. Modern medical training has been established at the University of Hong-Kong, at the Hunan-Yale Medical School at Changsha, at St. John's University, Shanghai, at the Kung Yi and Hackett Medical Colleges, Canton, and at the Shantung Christian University at Tsinan-Fu. At the last-named institution—which is financed by various British and American missionary societies, assisted by the Rockefeller Foundation—the courses are given in Mandarin. A year ago we published the substance of an address[2] delivered in London at the house of the Royal Society of Medicine by Dr. Harold Balme, head of the Shantung University, who emphasised the great value of medical education of the Chinese in their own language. One great function of all these medical colleges should be the stimulating and development for the Chinese people of institutions of a like nature, and the candidature of British medical men for posts in the Colleges deserves every support. We understand from the Foreign Office that Sir Beilby Alston is being requested to forward particulars of any posts which may be available, and of these we shall keep our readers duly informed.

[1] Medical Progress in China since the Republic, May 22nd, 1920, i., pp. 1203, et seq.

[2] THE LANCET, 1921, i., p. 450.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Plague.

THE situation with regard to bubonic plague remains disquieting, although better than a month ago. In Queensland cases have been mainly confined to Brisbane, although one was reported at Ipswich, an inland town. The daily average of patients in the isolation hospital is from 8 to 12. No fresh cases have been reported in Sydney, where infected rats are still being caught, and one declared case was admitted to the West Hospital. An occasional case is reported from Townsville. In Victoria no infected rats have been detected, except one from a steamer which had called at Brisbane and Queensland ports. A meeting of municipal authorities has been held in Melbourne, and a scheme for dealing with an outbreak of plague determined upon should it occur. The general direction of the scheme will fall to the city health officer, Dr. T. W. Sinclair, who had experience in the Sydney epidemic of 1903. A vigorous cleansing campaign has been instituted in Brisbane, which is still an unsewered city. The latest position (Dec. 30th, 1921) is that 98 cases have occurred in Queensland with 57 deaths, and 2 cases in Sydney with 1 death.

Hospital Finance.

An acrimonious newspaper correspondence has occurred in Melbourne between the Melbourne Hospital authorities and the State Treasurer (Mr. McPherson). Some weeks ago a patient was twice refused admission to the Melbourne Hospital after being seen in the casualty room where his injury was diagnosed as intra-capsular fracture of the thigh. Finally he was admitted as an urgent abdominal case and at autopsy it was found that the pelvis was fractured. The fact caused some comment, and the President of the hospital committee wrote and said that the case had been turned away for lack of room and that the hospital was being starved by the Government and could not carry on without more financial assistance. The Treasurer replied querying certain increases of expenditure for which he wanted explanation. The battle of words ended somewhat tamely and the position remains much as it was. At the adjourned coroner's inquiry the hospital staff was exonerated from blame in its action in refusing the patient admission.

Obituary.

The sudden deaths of two well-known practitioners occurred in Melbourne recently. Mr. W. Beattie Smith, F.R.C.S. Edin., who was found dead in his bathroom, the cause of death being cerebral hæmorrhage, was the leading consulting alienist in Melbourne and had a large experience as superintendent of various State asylums. He retired from the Victorian Lunacy Service about 15 years ago and engaged in a lucrative private practice. Mr. Beattie Smith was unmarried; he came to Victoria from Edinburgh, and was 67 years of age at the time of his death.

Mr. John Cooke, M.R.C.S. Eng., was killed by falling before a moving train at Armadale railway station. Mr. Cooke was a house surgeon at the London Hospital. On coming to Melbourne he was appointed resident surgeon to the Alfred Hospital. He subsequently began private practice and was appointed honorary surgeon to the Alfred Hospital, a position he held until his retirement on having reached the age limit. He was a bold and skilful operator of the old school and a very popular colleague and practitioner. He was in his seventieth year and leaves a widow and family.

Dec. 30th, 1921.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

A SPECIAL meeting of the President and General Council of King Edward's Hospital Fund for London was held at St. James's Palace on Feb. 1st, Lord DONOUGHMORE, member of the President's Powers Committee, being in the chair.

At the beginning of the proceedings it was resolved to send a message of loyal and humble duty to the King and Queen on the occasion of the betrothal of H.R.H. Princess Mary to Viscount Lascelles, and heartfelt wishes were expressed for her Royal Highness's lifelong happiness.

Lord SOMERLEYTON, hon. secretary, after announcing the appointment of Lord Cave and Lady Mount Stephen as members of the Council of the Fund, put from the chair a resolution expressing deep regret at the death of Mr. Walter Morrison, who had contributed more than £60,000 to the Fund. This was unanimously carried.

Postponement of the Contributory Scheme.

Reports of the Revenue Committee and the Management Committee were presented, and resolutions were passed to the effect that: 1. The King's Fund take steps to put into operation the scheme for a combined public appeal. 2. That it is not desirable to proceed to the institution of a "contributory scheme" until the results which follow the "combined public appeal" are known. In the meantime, steps should be taken to obtain the considered opinion of the medical profession in London, upon whom the duty of carrying any such scheme into practice would ultimately devolve. 3. That until the General Council shall otherwise direct, the Management Committee shall have the powers of the General Council in respect to the sanctioning of the expenditure by the Revenue Committee of the sums necessary for the combined public appeal.

Sir ALAN ANDERSON, the chairman of the Revenue Committee, presented a further report of the committee, which stated that it had considered the various other suggestions for increasing hospital income discussed by Lord Cave's Committee in their report, and particularly the following recommendations:—

(*a*) That all subscriptions to hospitals from employers should be allowed as a deduction from profits for the purpose of income tax (par. 53).

(*b*) That when residuary estate has been bequeathed to a hospital the hospital should be allowed to claim repayment of income tax as from the expiration of a year from the testator's death (par. 54).

(*c*) That all testamentary gifts to hospitals should be exempted from legacy and succession duties (par. 55).

Appeal to the Government.

The report was seconded by Lord SOMERLEYTON and carried unanimously, it being also decided to urge the Government to take immediate steps to give effect to the above recommendations of the Cave Committee, while the Revenue Committee of the Fund was authorised to press the matter forward.

The following notice of motion was moved by Lord BURNHAM, seconded by Sir JAMES KINGSTON FOWLER, and agreed to:—

"That it be an instruction to the Hospital Economy Committee to consider and report how best to connect and utilise the vacant accommodation and service of Poor-law infirmaries within the area of the Fund for the general purposes of hospital work."

A vote of thanks to the Chairman then terminated the proceedings.

THE MOUNT EVEREST EXPEDITION.—Dr. T. G. Longstaff will accompany as its medical officer the party which sails from England at the end of February under the leadership of Brig.-Gen. C. G. Bruce with the object of climbing Mount Everest. Dr. Longstaff, now in his forty-eighth year, is an Oxford and St. Thomas's man who, after qualifying in 1903, held resident appointments at the Brompton, West London, and Ormond-street Hospitals. He was awarded in 1908 the Gill Memorial Prize by the Royal Geographical Society for his journeys in Tibet and the Himalayas, and has contributed to the study of the causation of mountain sickness.

Correspondence.

"Audi alteram partem."

THE EDUCATION OF THE DEAF.

To the Editor of THE LANCET.

SIR,—The *Teacher of the Deaf* for February contains the following: "We understand that on Jan. 27th last the Board of Education issued a circular to local education authorities, informing them that in view of the present financial position the Board thought it desirable to warn such authorities that they may have to restrict their total expenditure on blind, deaf, and defective children in 1922–23 to the amount incurred in 1921–22." The Board further point out that this warning "is given without prejudice and must not be taken as implying that even further reductions of expenditure may not be found necessary."

The restrictions foreshadowed in this circular, the true significance of which lies in its second sentence, very seriously menace the future efficiency of deaf education, and every endeavour should be made to avert this particular threatening of the suicidal tendency which appears to influence present policy in regard to education. The great majority of people do not realise that the deaf child is merely an individual who has been bereft of what is, educationally speaking, his most important sense. He shows no more tendency to mental defect than do hearing children. Beyond the loss of this sense he is as normal as his hearing fellow, and consequently possesses an equal right to the best possible education. Hearing is the most important education sense because it is the channel through which the child obtains the speech and language without which he cannot think and reason clearly. This physiological education commences practically in the cradle. By means of hearing the child is storing up sensory impressions of language every minute of his waking life, and without them no motor mechanism of speech can be developed. The deaf child is thus denied the physiological education which is his right, and unless its place is taken by education through another sense-channel (i.e., through vision by lip-reading) his intellectual faculties remain undeveloped, so that his mind at 5 has reached no further than that of a hearing child at 2. Since the whole aim of modern teaching of the deaf is to prepare the deaf child to take his place in the battle of life upon as equal footing as possible with the hearing, a special physiological education is necessary before the former can be subjected to the pedagogical education which suffices for the latter.

These considerations may serve to expose the glaringly fatuous condition of the law which enacts that blind and hearing children shall commence their education at the age of 5, while their deaf fellows shall not go to school until 7, thus denying them the highly specialised teaching that they so urgently require. Teachers of the deaf have been long anxious to secure the alteration of this anomalous law. For many years I have strenuously advocated the early education of the deaf child, and the excellent results which have attended the oral instruction of little ones of 5 and even 3, when brain and larynx are most plastic to mould and apt to retain, have amply justified my opinion. By early education alone can one hope to obtain a speech which will become automatic. Hitherto the education authorities have allowed grants for deaf children from the age of 5, and have permitted parents to send their children to school at a still earlier age.

It must be patent to all who have the success of deaf education at heart that the effect of the Board of Education's circular will be to restrict the numbers of deaf children sent to the special schools, and that it means in future a rigid adherence to the strict letter of the law in respect to the age of admission. This will mean throwing upon the streets many highly intelligent deaf youngsters whose parents would

otherwise willingly send them to school. The waste of it and the pity of it sickens one. In a word, the circular menaces a serious blow at the very root of one of the most efficient departments of the education system of the country. That everyone, save those who are responsible for extravagances, is crying out for economy is undoubted, but such foolish acts as those with which education is at present threatened are not acts of economy. They are, indeed, the reverse, since they will have for effect the ultimate throwing of more useless persons upon State aid. That the education methods of the country generally need thorough investigation and reform cannot be denied, but false economies will accentuate rather than effect it. Nor is the present education of the deaf perfect, but it is making steady progress, and any such action as that foreshadowed by the Board of Education will seriously retard its forward march.

I am, Sir, yours faithfully,

MACLEOD YEARSLEY,
Consulting Aural Surgeon to the London County Council.

Welbeck-street, W., Feb. 5th, 1922.

B-VITAMIN AND PIGEON BERI-BERI.

To the Editor of THE LANCET.

SIR,—In a letter in your issue of Jan. 14th Dr. W. H. de Wyss, following Prof. W. R. Hess, maintains that the symptoms of B vitamin deficiency are due to inhibition of the oxidative processes of the tissues, and suggests that the B-vitamin furnishes the structural basis of the oxidative ferments of the body. The evidence on which this theory is based is twofold—experiments in vitro with tissues of pigeons suffering from beri-beri are said to show reduction of the oxidative processes compared with the normal controls, and the symptoms of beri-beri are said to be produced on injecting potassium cyanide, which is known to inhibit oxidation in living cells.

It must be pointed out, however, that even if we agree that the oxidative processes are depressed in fully developed beri-beri, we cannot at once conclude therefrom that the point of action of the vitamin is on the tissue cells in general. It must first be demonstrated that the effect described *immediately* follows the removal of the vitamin from the diet. In the experiments I detailed in your issue of Dec. 10th, 1921, I demonstrated that within 24 hours of withholding the vitamin, symptoms of insufficiency of the alimentary canal, such as diminished intake of food and paresis of the gut, make their appearance, and that these symptoms are immediately relieved on re-adding the vitamin to the diet. The intestinal phenomena mentioned can be noted when the animal appears to be otherwise in perfect health, and cannot therefore be regarded as part of a general depression of the tissues throughout the body. Thus the primary site of action of the vitamin is the alimentary canal, and the diminution in the oxidative powers of the tissues which Hess observed in animals suffering from an advanced stage of beri-beri, can be explained by the intoxication which is secondary to the condition of ileus produced by withholding the vitamin from the diet. The experiments of Messerli, quoted by Dr. de Wyss, are not conclusive to the contrary, as owing to the abnormal condition of the intestine it is not certain that charcoal would succeed in completely removing alimentary toxins which were being continuously elaborated.

The conception underlying the theory of Hess, that the B-vitamin is a substance which is essential to the life of all cells, has already been criticised by Dr. W. Cramer in a recent issue of THE LANCET (Dec. 10th, 1921). The evidence there brought forward showed that this attitude can no longer be successfully maintained.

I am, Sir, yours faithfully,

SAMSON WRIGHT.

Department of Physiology, Middlesex Hospital, W., Jan. 25th, 1922.

A RED CROSS CLINIC FOR CIVILIANS.

To the Editor of THE LANCET.

SIR,—As is generally known the Kensington and other divisions of the County of London Branch of the British Red Cross Society have developed clinics for the treatment of ex-Service men with massage, electricity, radiant heat, and remedial exercises. Although, owing to the closing of the Fulham Clinic, the Kensington division finds that its work for pensioners must continue for a further indefinite period, yet the executive committee recognise that within a comparatively short time there will not be enough of this work to justify the maintenance of the clinic, and they have, after consultation with some local representative medical practitioners, including the Mayor of Kensington, decided to open a clinic for the general public, members of which, however, will only be able to avail themselves of the services of the clinic on the recommendation of a medical practitioner.

A medical expert in physico-therapeutics will be in charge of the medical and surgical side of the work, while the administration will be in the hands of the Kensington division, B.R.C.S., who, in professional matters, will be assisted by an advisory committee of medical men. Fees will be charged on a graduated basis up to a maximum of 5*s.* per treatment, anybody able to pay more than this sum being ineligible for treatment at the clinic. The clinic was opened for civilians on Feb. 3rd, the hours of attendance being from 2.30 to 9 P.M.

At a time when the development of municipal clinics has aroused much opposition in the ranks of the medical profession, it is to be hoped that credit will be given to the Kensington division of the British Red Cross Society for its endeavour to further the interests of the general public, the medical profession, and the masseurs and masseuses. Moreover, some at least of the provisional medical advisory committee hope that this attempt of the B.R.C.S. to develop, in conjunction with the medical profession, a much-needed physical treatment centre may serve as an example of how clinics may most usefully be developed, and suggest the solution of many difficulties now confronting the medical profession.

I am, Sir, yours faithfully,

HAROLD H. SANGUINETTI,
Hon. Sec., Provisional Medical Advisory Committee.

Feb. 3rd, 1922.

THE ERECT POSTURE.

To the Editor of THE LANCET.

SIR,—Dr. Knox Thompson's conclusion regarding the liability of the pulmonary apices to be compressed by the ribs can be tested by the results of post-mortem examinations. Is there any post-mortem evidence of a special tendency on the part of the apices to collapse or semi-collapse? My observations on the living subject suggest that the inspiratory muscles attached to the upper part of the chest are at great pains to keep the lungs expanded. Am I not right in saying that even in the last stages of phthisis they contract powerfully?

Respecting the influence of the upright posture on the cerebral circulation Dr. Thompson writes (Feb. 4th, p. 251): "It must be remembered, too, that the cerebral vessels are poorly supplied with vasomotor fibres, and that the onus of regulating the intracranial blood pressure rests largely with the splanchnics, the resistance of the cerebral arterioles altering very little." It has always seemed to me that Dr. Leonard Hill (whose teaching Dr. Thompson is following here) has exaggerated the part played by the splanchnics in regulating the cerebral circulation. No doubt these nerves exercise an important influence in regulating the general arterial blood pressure, but I much doubt whether they play an appreciably greater part in regulating the cerebral circulation than the circulation elsewhere. The local circulation of the brain, as of other parts, is, I believe, regulated by the

arterioles rather than by changes in splanchnic resistance. It must not be forgotten that what may be termed the *anatomical* resistance in the vascular circuit (i.e., the resistance when the arterioles are fully dilated) is very small; Nature has cunningly reduced that resistance to a minimum. It is the physiological resistance offered by the arterioles which is responsible for the chief resistance, and the high blood pressure, in the systemic circuit. Provided the cerebral arterioles dilate efficiently, a moderate blood pressure in the carotids and vertebrals would suffice to flush the brain with blood. It seems reasonable to suppose that when the upright posture is assumed the cerebral arterioles tend to dilate, and that there is then no pressing need for an increment of pressure in the ascending arteries.—I am, Sir, yours faithfully,

Wimpole-street, W., Feb. 5th. HARRY CAMPBELL.

ALPINE TREATMENT OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—The seven years' reign of the passport tyrants in all Foreign Offices and Consulates, and other interferences with free international travel resulting from the war, have had a disastrous effect upon the treatment of tuberculosis. The British sanatorium in Davos, built under the patronage and name of Queen Alexandra, after vain appeals from the late Lord Balfour of Burleigh and others, has recently been sold by its committee to the Cantons of Schaffhausen and Thurgau. In spite of the efforts of Lord Balfour, Dr. Mitchell Bruce, Sir William Willcox, and several others who tried in vain to save it for the nation, this institution which the Queen Mother had fostered, and which had been a great blessing to so many English patients of moderate means, has been disposed of to the Swiss authorities.

During the war consumptive sanatoria sprang up in England in all directions to meet urgent military necessities, and the treatment of tuberculosis in this damp and sunless climate grew rapidly. I believe that I was the first English writer to call attention to the remarkable plateau of Montana. This place with Villars-sur-Ollon and Leysin on the north side of the Rhone Valley furnish unique conditions for the treatment of this terrible disease. Some very influential representatives of the medical profession, including Dr. Mitchell Bruce, Sir Humphry Rolleston, Sir William Willcox, Sir John Broadbent, Sir Charlton Briscoe, and others, whose names are known throughout the medical world, visited Switzerland last summer as guests of the Swiss Government to inspect the Swiss health resorts. As a result of these visits several articles appeared in *The Lancet*, *British Medical Journal*, and the *Journal of Tuberculosis*, in which the writers testified that the climate and other conditions of the north side of the Rhone Valley are of great value in dealing with the disease.

From time immemorial the dryness of the climate in the Valais on the north side of the Rhone has been so great that former generations have constructed what would be called in India huge "tanks" or small lakes for the irrigation of the vineyards which stretch along the whole of that side of the valley, where the long duration of sunshine produces wines almost as strong as the Italian wines. On the shortest day in winter these slopes enjoy two hours more sunshine than Alpine lung resorts in German-speaking Switzerland.

I venture to suggest that the funds from the sale of the Queen Alexandra Sanatorium, now in the hands of the committee, might well be supplemented by some generous donor or donors for the purpose of re-establishing in French-speaking Switzerland the work carried on in Queen Alexandra's name with such benefit to our countrymen. I am supported by the best medical opinion in saying that recoveries are more probable and more rapid in an institution, situated in such a district as I have described, than can be hoped for, under any circumstances, within the range of the British Isles.—I am, Sir, yours faithfully,

House of Commons, Feb. 6th. MARTIN CONWAY.

"RADIATIONS FROM SLOW RADIUM."

To the Editor of THE LANCET.

SIR,—My attention has been drawn to a review of my book, Radiations from Slow Radium and their Therapeutic Value, on p. 184, of your issue of Jan. 28th. May I ask for the hospitality of your columns to repudiate certain of the statements which are contained in the review and to point out a serious omission?

In the first instance several of the statements made by your contributor are disingenuous and incorrect; in the second, not a single word has been said on the medical aspect of my suggestions as to the usefulness of slow radium as a therapeutic agent.

Your contributor says: "It is difficult to believe that Mr. Kramer's object has been 'to offer to the medical profession a concise handbook in the introductory study of the modern electron theory, including the principal characteristics and the physical constants of radium radiations.'" He ignores, however, the qualifying first sentence of my preface, which reads as follows: "The study of radium and its radiations has been rendered rather difficult for the medical man, owing to the fact that most books published on this subject contain intricate mathematical problems and highly abstract technicalities and fail to give any practical applications." The book throughout proves conclusively that wherever I have referred to the electron theory or physical constants of radium radiations, I have deliberately avoided advanced mathematics or hypothesis in order to keep within the limits of an introductory study. That I have succeeded in this respect I have already abundant proof in the letters received from a large number of readers. My reference to the electron theory only applies to the beta particle from radio-active substances which is commonly known as an electron, and is usually thus referred to in most text-books—as an example see p. 31, para. 2.

Your contributor asserts, "the remaining fifth part of the book refers to a garbled account of the properties of radium and its rays." I presume he refers to Chapter VII., p. 79 and consequent pages, in which I have given a summary of the principal properties of pure and impure radium radiations, although they have already been dealt with in greater detail in the first six chapters. In his review he uses the expression "radium and its rays," an error which I have personally avoided in my book, as it is of course well known that the alpha and beta radiations are "radiating particles," and are no longer referred to in modern text-books as "rays."

Your contributor quotes ironically: "After 2000 years the radio-activity ceases and the 'temporary' element of radium has been converted into the element of lead, still composed of fabulous millions of electrons in temporary stable condition." This phenomenon is so well known to almost everyone with even a smattering knowledge of the radium or electron theory, that one wonders for what purpose he selects this sentence. He is similarly naive in his quotation regarding the speed of gamma rays. On p. 83, para. 6, he would have discovered more information on this point.

Now comes the most glaring error in his review. He describes the illustration of "the magnetic deviation of alpha and beta rays" (as he calls them) as erroneous. I can refer him to a great many text-books which contain similar illustrations, but I think it will suffice to quote a few only: Radio-active Substances and their Radiations (p. 116), by E. Rutherford, D.Sc., Ph.D., LL.D., F.R.S. My illustration on p. 13 is almost identical, but in addition I show diagrammatically an electro-magnet, as well as such a device can be shown in its relative position without complications. Studies in Radio-Activity (p. 116), by W. H. Bragg, M.A., F.R.S. Here he will find again a diagram of an electro-magnet, the field of which deviates the alpha and beta particles in the usual well-known manner. The Interpretation of

Radium (pp. 66 and 67), by Frederick Soddy, M.A., F.R.S., also deals very fully with this point. The Becquerel Rays and the Properties of Radium (pp. 57–60), by Hon. R. J. Strutt, F.R.S., again describes in detail this subject.

On the chief point at issue, my suggestions as to the possible therapeutic value of slow radium, he is silent. As I have stated in particular in the preface to my book, the lesser concentrations of radium, uranium, and thorium compounds deserve attention, and as quite four-fifths of it clearly deals with my research work in this direction, it surely should have drawn some comment, favourable or otherwise, especially as his contribution was directed to a great medical journal. I have sincerely endeavoured to make some suggestions to the medical profession in regard to treatment by impure radio-active substances, with a view to stimulating the interest of radium workers and hoping that my work might be of some little use and assistance to them. If your contributor had given some guidance—pro or contra—in this respect, perhaps by commenting on the essence of my theory illustrated and described on pp. 66 and 67, his criticism would have been more to the point.

I am, Sir, yours faithfully,

Edgbaston, Jan. 30th, 1922. J. B. KRAMER.

*** The reviewer replies as follows: "In talking about radium, the author states that after 2000 years the radio-activity ceases. When the reviewer draws attention to the error in this statement, the author retorts that 'this phenomenon is so well known to almost everyone with even a smattering of knowledge of the radium or electron theory, that one wonders for what purpose he (the reviewer) selects this sentence.' The reply is simply that the sentence was selected because it is erroneous. The reviewer described the illustration of the magnetic deviation of alpha and beta rays as erroneous. The author says that this is the most glaring error in the review. The opinion of the reviewer remains unchanged. The illustration is not only erroneous, but it seems to drag from a lofty pedestal classical researches which merit that position. Whatever virtues there may be in the therapeutic action of the preparations described, time will doubtless show."—ED. L.

THE PROBLEM OF THE SOLITARY CHILD.

To the Editor of THE LANCET.

SIR,—I was specially interested in that part of Dr. R. Hutchison's valuable paper in THE LANCET of Jan. 28th in which he describes the difficulty he had in the attempt to examine the throat of an only child. "Any proper examination of the throat in a case of only childism is almost a physical impossibility, except by the exertion of the united force of two strong adults." Having been confronted by a similar difficulty in the case of a "solitary child" I thought a description of the manner in which it was successfully met would be of interest to your readers.

During an epidemic of diphtheria I was hastily summoned to see an only child, a boy 6 years of age, who had steadily refused to allow an examination of his throat to be made. On my arrival I found both parents broken-hearted and in tears. My attempt to see the throat being equally fruitless as those of my predecessors, I asked the parents to give me two large handkerchiefs and then leave the room. After a little quiet talking to the child I tied the wrists together and adopted a similar measure with the ankles. After this was done I was surprised to see how quickly the boy recognised he was "done" and offered no further opposition to my making a thorough examination of the throat which, fortunately, proved to be negative. To my increased surprise the child insisted on kissing me before I left, and I was subsequently informed that for several days after my visit the boy would stand at the front window for hours in the hope of seeing me go by.

I am, Sir, yours faithfully,

Jan. 31st, 1922. C. W. C.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Temp. Surgn. Lt.-Cmdr. A. Craig is transferred to the Permt. List.

ROYAL ARMY MEDICAL CORPS.

Lt.-Cols. to be temp. Cols. whilst holding spec. appts.: B. Watts, H. G. Martin, F. F. Carroll, W. P. Gwynn, N. H. Ross, and E. T. Inkson.

Temp. Lt.-Col. J. Keay relinquishes his commn. and retains the rank of Lt.-Col.

Maj. W. S. Crosthwait retires on ret. pay.

Capt. J. W. Malcolm and Lt. (temp. Capt.) F. K. Escritt are secd. for service under the Colonial Office.

ARMY DENTAL CORPS.

Lt. (temp. Capt.) P. E. Brown to be Capt.

TERRITORIAL ARMY.

The undermentioned officers, having attained the age limit, are retired and retain their rank, except where otherwise stated: Lt.-Col. J. T. Thomas (with permission to wear the prescribed uniform), Majs. (Bt. Lt.-Col.) H. Skelding (with permission to wear the prescribed uniform), D. F. Todd (is granted the rank of Lt.-Col. with permission to wear the prescribed uniform), G. Wilson (retains the rank of Maj. with permission to wear the prescribed uniform), C. R. Bishop (with permission to wear the prescribed uniform), and A. Price (with permission to wear the prescribed uniform), and Capts. J. G. F. Hosken (is granted the rank of Maj.), E. F. Rose, J. A. Hartley, G. S. Hughes, E. H. Gonin, H. C. Barr, R. L. Thomas, J. S. Hall, G. A. Brogden, C. M. Mitchell, F. W. Burn, R. U. Moffat, and H. F. J. Graves.

TERRITORIAL ARMY RESERVE.

Capt. N. W. Kidston, from Genl. List, R.A.M.C., to be Maj.

Capt. R. L. Routledge, having attained the age limit, is retired, and retains the rank of Capt.

Capt. J. A. Davies, from Genl. List, R.A.M.C., to be Maj.

Maj. S. Lodge, having attained the age limit, is retired and retains the rank of Maj. with permission to wear the prescribed uniform.

Capts. M. B. Dawson, G. L. K. Pringle, and A. T. Griffiths having attained the age limit, are retired and retain the rank of Capt.

Surg.-Maj. (Hon. Surg. Lt.-Col.) R. Bullock (Yeomanry) and Surg.-Maj. A. R. Stoddart (Infantry), having attained the age limit, are retired and retain their rank with permission to wear the prescribed uniform.

ROYAL AIR FORCE.

Capt. O. Armer, Army Dental Surgeon, is granted a temporary commn. as a Flight-Lt. while attached for duty with the R.A.F.

INDIAN MEDICAL SERVICE.

The King has approved of the retirement of Lt.-Col. S. Anderson.

Lieut. Pirojsha Merwanji Antia to be Capt.

PENSIONS OF INDIAN MEDICAL DEPARTMENT.

The revised scale of pension for members of the Indian Medical Department has been published. For senior assistant surgeons, with the rank of major, the pensions run from £306 per annum for a service of 25 years to £360 per annum for one of 34 years. At the bottom of the scale assistant surgeons, first class, are awarded pensions for the same two periods of £154 and £190 per annum, respectively. All those now in the Service, as well as qualified existing pensioners, will receive their pensions in India or elsewhere where the Indian Government rupee is legal tender at the same number of rupees per mensem as pounds per annum laid down in the scale. Future entrants to the department will be restricted to the rupee of pension, irrespective of residence. Special provisions are made for members who rendered paid military service during the Great War or who were retained in the Service beyond the age of 55 years.

I.M.S. APPOINTMENTS IN BENGAL.

It is understood that in future all I.M.S. appointments in Bengal are to be made by the local government subject to information being sent to the Government of India, the local government taking the advice of the Government of India in such cases as they think necessary.

Medical News.

UNIVERSITY OF OXFORD.—In a Congregation held on Jan. 26th the following degree was conferred:—

Bachelor of Medicine (*B.M., B.Ch.*)—Gordon Cranstoun, Oriel College.

Radcliffe Travelling Fellowship, 1922.—An examination for a Fellowship of the annual value of £200, and tenable for three years, will be held at the University Museum, commencing on February 21st, at 10 A.M. The examination will occupy four days. Papers will be set in physiology, pathology, and preventive medicine, and a subject will be proposed for an essay. There will also be a practical examination in pathology. Two months before the expiration of the second year after the election of each Fellow, the Regius Professor of Medicine and the examiners present a report on the work done by him to the electors, who may, if they think the report unsatisfactory, declare the Fellowship forfeited

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Final Examination of the Conjoint Board, held from Jan. 10th to 31st, the undermentioned candidates were approved in the subjects indicated, but are not eligible for diplomas:—

Medicine.—J. V. D. Allin, Birmingham; J. R. Azurdia, Liverpool; A. O. Bekenn, Birmingham; H. C. Berlie, St. Mary's; Gwendolen M. Brown, Charing Cross; Margaret M. Brownstone, Univ. Coll.; C. B. Byrd, Liverpool; Marjorie F. Cartledge, Grace D. Chambers, and J. R. Chaudri, St. Mary's; T. J. Clayton, Charing Cross; Gwendolen C. Cotton, Royal Free; W. L. S. Cox, Univ. Coll.; Gertrude M. de Souza, Royal Free; A. E. H. Eades, Birmingham; Beatrice E. Ebden, London; W. C. Faull, St. Mary's; C. E. Fenton, London; R. M. Fry and Lydia S. Fuller-Maitland, St. Mary's; Hilda M. Garlick, Royal Free; Irene M. Golding and Janet V. Good, London; Louisa P. Gordon, King's Coll.; H. G. Hall, Univ. Coll.; J. K. Hasler, Middlesex; Lily G. Iliff, Royal Free; H. V. Jessop, Birmingham; D. Krestin, London; E. G. Lewis, Charing Cross; E. V. Luprian, St. Mary's; W. S. McClinton, Westminster; D. C. McIntosh, Univ. Coll.; Clara E. Mathias, Royal Free; W. E. M. Mitchell, St. Bart.'s; M. S. H. Mody, London; J. A. Morton, St. Bart.'s; F. G. Nicholas, Middlesex; T. C. Oliver, London; A. R. V. Patel, Guy's; L. P. Phillips and Gladys H. Randall, Charing Cross; H. E. K. Reynolds, Leeds; A. H. M. Sabry, Charing Cross; H. S. Savage, Birmingham; I. A. Senanayeke, Univ. Coll.; C. Shepherd, Guy's; N. R. Smith, Sydney; S. Snelson, Manchester; Dulcie C. Staveley and Emma M. Store, Royal Free; G. H. T. Stovin, London; H. A. Surial, Birmingham; M. L. Sutcliffe, Univ. Coll.; Mary I. Symons, London; W. T. de V. Thomson, Liverpool; Lendal Tweed, Royal Free; C. A. Wells, Liverpool; F. W. Widgery, Guy's; Catherine M. Williams, St. Mary's; and J. A. Young, Queen's University, Kingston.

Surgery.—L. A. Bennett, Otago and London; A. W. Brown, Cambridge and St. Bart.'s; R. C. Brown, Durham; D. I. Currie, Leeds; F. A. Gaydon, St. Thomas's; A. A. Gemmell, Liverpool; F. Guiver, London; Muriel M. Harris, King's Coll.; S. G. Harrison and G. H. Hogben, St. Bart.'s; S. I. Levy, Westminster; Gladys H. Marchant, Charing Cross; J. K. Milward, Guy's; A. Mitchell, King's Coll.; D. C. Muir, Middlesex; J. Ness-Walker, St. Bart.'s; R. W. Nichol, St. Thomas's; D. H. Patey, Middlesex; H. E. K. Reynolds, Leeds; N. F. Shaw, Middlesex; G. R. M. Swan, St. Thomas's; H. W. Taylor, Guy's; M. Theiler, St. Thomas's; Hilda M. Whitfield and H. M. Williams, Univ. Coll.; C. P. Wilson, Middlesex; and S. J. Woodall, St. Bart.'s

Midwifery.—W. F. T. Adams, St. Bart.'s; J. V. D. Allin, Birmingham; W. H. Bailie, St. Mary's; L. A. Bennett, London; N. Bohtlingk, Charing Cross; R. C. Brown, Durham; C. H. Budge, St. Thomas's; A. G. Bull, King's Coll.; C. B. Byrd, Liverpool; Dorothy M. Campbell-Meiklejohn, Univ. Coll.; Madeleine H. Clarke, Univ. Coll.; D. H. Cockell, St. Bart.'s; R. W. Cockshut, Liverpool; J. Cohen, St. Mary's; Doris B. Collier, Univ. Coll.; H. E. C. Collins, Sheffield; Gwendolen C. Cotton, Royal Free; J. L. Cox, London; N. McL. Craig, St. Bart.'s; A. C. Crawford, Liverpool; D. I. Currie, Leeds; W. A. Date, St. Mary's; Kathleen F. Davies, Univ. Coll.; S. J. Davies and C. J. Donelan, St. Bart.'s; D. J. Dubash, Calcutta; Helen W. Duncan, Liverpool; A. E. H. Eades, Birmingham; R. H. Evans, London; D. C. Fairbairn, St. Bart.'s; A. C. Fernando, Ceylon; H. S. Forbes, Univ. Coll.; W. F. Francis and Margery Freeborough, St. Mary's; C. B. S. Fuller, St. Thomas's; Ada Furniss, Manchester; H. J. Garrod, Middlesex; Lena B. Gayer, London; H. Geary, Manchester; R. J. Gittins, Birmingham; Irene M. Golding, London; Alice M. F. Goldmann, Univ. Coll.; B. W. B. Gordon, St. Mary's; M. Gornik, Paris and Charing Cross; Martha Griffith, Charing Cross; R. Hale-White, Cambridge and Guy's; E. Haworth, Univ. Coll.; H. C. Hill, N. G. Hill, and H. A. Hirst, London; Phyllis M. Horton, Royal Free; G. H. Howells, Cardiff and St. Thomas's; F. D. Howitt and J. S. Hudson, Guy's; Lily G. Iliff, Royal Free; T. James, St. Bart.'s; A. E. Jenkins, St. Thomas's; H. V. Jessop, Birmingham; C. M. John, Royal Free; T. E. Jones, Guy's; J. W. Joule, St. Bart.'s; R. W. C. Kelly, St. Mary's; K. B. Kermani, Univ. Coll.; B. Kessel, Guy's; L. Lawn and M. M. Lewin, St. Thomas's; E. R. Lewis, Univ. Coll.; A. E. Lorenzen, St. Bart.'s; J. Lowe, Birmingham; L. H. B. MacLeod, Guy's; N. S. Macpherson, St. Thomas's; A. W. Marrison, St. Bart.'s; V. M. Matthews, St. Mary's; Kathleen F. Matthews, Univ. Coll.; Clara E. Mathias, Royal Free; E. B. Messinier, Middlesex; G. O. Montgomery and H. Mould, Univ. Coll.; F. G. Nicholas, Middlesex; Elizabeth M. Nicholson-Smith, King's Coll.; C. V. Patrick, St. Thomas's; H. D. Paviere, Oxford and St. Thomas's; F. Y. Pearson, Univ. Coll.; R. C. Peate, Middlesex; Mary F. R. Pitt, London; Kathleen M. Platt, Liverpool; Gwendolen M. Pratt, Royal Free; E. D. Pridie, Liverpool; S. A. H. Qureshi, Univ. Coll.; Muriel Rawlinson, Royal Free; T. P. Rees, St. Bart.'s; H. Richards, Guy's; S. D. Ricley, St. Mary's; C. E. Roach-Smith, London; J. A. W. Roberton, St. Bart.'s; Nora A. Robinson, Royal Free; B. C. de S. Rupasingha, Ceylon and London; R. Salib, Manchester; Gladys M. Sandes, Royal Free; Emily V. Saunders-Jacobs, Univ. Coll.; H. S. Savage, Birmingham; C. F. H. Sergeant, Liverpool; D. G. Sharp, Cambridge and Guy's; Patricia H. Simpson Shaw and Lucy C. Simpson, St. Mary's; Agnes B. Smith, King's Coll.; F. E. Smith, Middlesex; Y. S. Soliman, St. Thomas's; R. M. Somerset, Sheffield; Dulcie C. Staveley, Royal Free; J. A. Struthers and C. Sturton, Cambridge and St. Bart.'s; G. D. Summers and D. B. Sutton, King's Coll.; G. R. M. Swan, St. Thomas's; C. G. Taylor, Cambridge and Guy's; Beatrice Teverson, St. Mary's; M. Theiler, St. Thomas's; Agnes W. O'Dwyer Thomas, Royal Free; G. D. Thomson, Cambridge and St. Thomas's; T. R. Thomson, St. Thomas's; N. Tilander, Upsala; M. A. Townshend, Univ. Coll.; Kathleen E. Tresilian, London; Lendal Tweed, Royal Free; F. S. Vaughan, Birmingham; Constance C. M. Watson and Elizabeth N. Wells, Charing Cross; J. Whitby, Middlesex; Agnes H. White, Royal Free; Ella K. Will, London; H. W. M. Williams, St. Bart.'s; H. N. Williams, Univ. Coll.; G. Wilson, Charing Cross; D. A. Windemer, Guy's; and Marguerite A. M. Xavier, Royal Free.

LECTURES ON VITAMINS.—A course of five lectures on the Most Recent Researches on the Accessory Food Factors (Vitamins) will be delivered by Dr. S. S. Zilva, D.Sc., on Thursdays, beginning on March 2nd, at 5.45 P.M., at the Battersea Polytechnic, London, S.W.

HARVEIAN SOCIETY.—A clinical meeting was held at St. Mary's Hospital on Feb. 9th. The rest of the programme for the first half of 1922 has now been issued. On March 9th Sir Crisp English will deliver the Harveian lecture, entitled "Taking Stock from an Armchair." On March 23rd Mr. Aleck Bourne will read a paper on Albuminuria in Pregnancy, to be followed by a discussion. Thursday, April 27th, will be devoted to a discussion on Influenza. On May 18th there will be a clinical meeting at Paddington Infirmary, and on June 15th the annual dinner will take place.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.—The first meeting of this association was held at St. James's Municipal Hospital, Balham. The President of the South-West London Medical Society, Dr. E. J. Pritchard, was in the chair, and the meeting was well attended. Sir Almroth Wright delivered the inaugural address on Some Points in the Treatment of Hæmorrhage and of Thrombosis. He said that persistent hæmorrhage might be due to three distinct variations from normal in the blood: (1) slow coagulation, (2) deficiency of red blood corpuscles, (3) deficiency of the fibrin meshwork which in the normal clot entangled the red blood corpuscles. It was not sufficiently recognised that the first cause might be remedied by the inhalation of CO_2, which, when given in large doses to an individual with normally clotting blood caused massive clotting; this was the explanation of the thrombosis occurring in the veins of the legs of a sprinter during a race. CO_2 could be obtained from soda water when a cylinder of the gas was not available. Provided sufficient oxygen were supplied an atmosphere containing 80 per cent. of CO_2 might be breathed for 15 minutes without danger. For deficiency of red blood corpuscles the supply of more red blood corpuscles by blood transfusion was the most effective remedy, but the place of the red blood cells as packing material might be taken in emergency by sterilised chalk powder applied to the bleeding part. Calcium salts, which were too universally employed in hæmorrhage, affected the fibrin meshwork of blood clot only by rendering it less delicate and not so ready to shrink. When the fibrin meshwork was not at fault calcium would be of no avail. The treatment of thrombosis was the exact reverse of the treatment of hæmorrhage. Massive thrombosis rarely occurred, and even when it did an open channel was soon formed by the shrinking of the clot. This was normally sealed almost as soon as it formed by fresh clotting. Hence the indication was to diminish the clotting power of the blood. Citric acid had this effect, but to be effective it must be given in large doses (up to ʒii. three times a day), which not infrequently caused severe depression. In smaller doses it might be given as a prophylactic against post-operative thrombosis and embolism. A vote of thanks to Sir Almroth Wright, proposed by Dr. Biggs, was carried with acclamation.

At the next meeting, on Feb. 15th, Dr. Grainger Stewart will speak on Nervous Sequelæ of Influenza.

Mr. Percy Sargent, C.M.G., F.R.C.S., has been appointed Honorary Consultant Surgeon to the Ministry of Pensions.

ROYAL INSTITUTION.—The Friday evening discourse on Feb. 17th will be delivered by Prof. D. S. M. Watson on the History of the Mammalian Ear.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—A meeting will be held to-day, Friday, in the Board Room of the Miller General Hospital, Greenwich, at 8.45 P.M., when Dr. C. T. T. Comber, the President, will occupy the chair, and Dr. C. O. Hawthorne will deliver an address entitled Some Pulse Tracings and their Meanings.

SOCIETY FOR CONSTRUCTIVE BIRTH CONTROL.—At a meeting to be held on Feb. 16th, at 8 P.M., at the Essex Hall, Strand, London, Mr. E. B. Turner, F.R.C.S., will lecture on Sex Relationships as discussed at the recent Church Congress. Tickets can be obtained on application to the hon. secretary at 61, Marlborough-road, London, N. 19.

ROBERT CAMPBELL MEMORIAL.—The first Memorial Oration will be delivered in the Medical Institute, College-square North, Belfast, on Thursday, Feb. 16th, at 8 o'clock, by Mr. Thomas Sinclair on the subject of the Surgery of the Blood. The chair will be taken by Sir John Walton Browne, M.D. Members of the profession are cordially invited. The total subscriptions to the fund are now just over £889.

CANCER RESEARCH ENDOWMENTS.—In response to many appeals Sir William Veno has consented to alter the conditions governing his offer of £10,000 for the discovery of a cure for cancer, and will give £1000 a year for ten years for the purpose of cancer research. Lord Atholstan holds to his original offer of 100,000 dollars prize for a cure, but will devote an equivalent sum to research purposes in addition.

CANCER HOSPITAL.—A course of 12 clinical lectures on the Diagnosis and Treatment of Cancer will be held at the hospital, Fulham-road, London, S.W., on Tuesdays and Fridays, at 4 P.M., free to medical practitioners. The first lecture will be on Feb. 21st, when Sir Charles Ryall will speak on Cancer of the Tongue. Subsequent lectures, to be given by Mr. W. Ernest Miles, Mr. R. H. Jocelyn Swan, Mr. C. E. S. Phillips, Mr. Cecil Rowntree, Dr. Knox, Dr. Leitch, Mr. Percival P. Cole, Mr. Cecil Joll, Dr. Wyard, and Dr. Rice Oxley, will be announced in our Medical Diary.

TRAINING FOR SCHOOL CLINICS.—On Feb. 1st Sir George Newman gave an address introductory to the six months' post-graduate course (see THE LANCET, Jan. 7th, p. 29) at the London Hospital for intending school medical officers and practitioners desirous of undertaking part-time work at school clinics. The success of the experiment, he said, depended on its result, not on the numbers who attended the course; he emphasised the difficulty of keeping in view of school medical officers the fact that the service must rest on a clinical basis—in other words, the difficulty of maintaining the clinical spirit in men who had become administrators. Some two-and-a quarter millions of children were now inspected, and when necessary received treatment, every year; the Government had been compelled to take up the work of dealing with eye, teeth, ear, nose, and throat complaints amongst school children, as it was found impracticable for private practitioners to deal with them. If the State could solve the problem of the child's health it would turn off the tap of a great deal of disease now flowing into the out-patients' departments of the hospitals.

TREATMENT OF THE CRIMINAL.—The first of a series of lectures on the Mind and What We Ought to Know About It was held under the auspices of the People's League of Health at the Royal Society of Arts on Feb. 6th, when Dr. Bernard Hart gave an address on Primitive Instincts. The Home Secretary, who presided, expressed the opinion that it was impossible to over-estimate the importance of scientific knowledge of the mind, adding that such knowledge should be possessed not only by experts but by all members of the community. The Home Office had the control and guardianship of criminals of all ages, and the more that was known about the working of the mind the more easy would be the task of dealing with them. Many criminals ought to be treated as patients and not punished, it being often as sensible to punish them as it would be to whip a child who had curvature of the spine. Sir Edward Shortt went on to say that he would like to see every judge, every recorder, and every magistrate attending such a series of lectures as those which were about to follow. The Borstal system was doing good work, but it was hindered by the inability of the State to provide adequate supply of money. The ideal Borstal tutor would be a thoroughly trained combination of doctor and schoolmaster in charge of no more than 30 boys. Something could then be done both to cure and prevent crime, and prevention was, he concluded, more important than cure.

ROYAL SANITARY INSTITUTE.—A sessional meeting will be held on Feb. 24th and 25th, in the Town Hall, Leeds, when discussions will take place on the Limitations of Bacteriology in connexion with Public Health Work, to be opened by Dr. J. W. McLeod, lecturer in bacteriology at the University of Leeds, and on Hospital Management and Treatment of Infectious Diseases by Dr. A. E. Pearson, med. supt. of the Seacroft Infectious Diseases Hospital. The chair will be taken at 7 P.M. by Prof. H. R. Kenwood.

THE LATE LT.-COL. G. H. LE MOTTÉE.—Colonel George Herbert Le Mottée, R.A.M.C. (retired), died in Guernsey on Jan. 18th, in his seventy-second year. He was educated at Elizabeth College, Guernsey, and Marlborough; from there he went to King's College Hospital, qualifying M.R.C.S. and L.S.A. in 1872 and M.B., C.M. Aberd. in 1882, becoming M.D. in 1884. He entered the Army Medical Service in 1875, passing into it at the head of the examination list, and his military service was spent chiefly in South Africa and India. His last appointment in India was that of head of the military hospital in Quetta. He returned home on sick leave in 1901, and shortly afterwards retired to his native island where he has since devoted almost 20 years to public service.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A special post-graduate course in surgery will be held from Feb. 20th to April 1st in connexion with the following hospitals: Cancer Hospital, Chelsea Hospital for Women, Hampstead General and North-West London Hospital, London Lock Hospital, London Temperance Hospital, National Hospital for the Paralysed and Epileptic, Prince of Wales's General Hospital, Queen's Hospital for Children, Royal Free Hospital, Royal National Orthopædic Hospital, Royal Northern Hospital, St. George's Hospital, St. Mark's Hospital for Diseases of the Rectum, St. Peter's Hospital. The fee for the course is 12 guineas, and, subject to there being vacancies, special arrangements may be made for those unable to take the whole course. The names of those wishing to attend should be sent as soon as possible to the Secretary at the Fellowship of Medicine, 1, Wimpole-street, W. 1, to whom all inquiries should be addressed.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The New Session.

THE new session of Parliament was opened by the KING on Tuesday, Feb. 7th. The well-received speech from the Throne contained an important reference to the question of national economy. Addressing the Members of the House of Commons His Majesty said: "Every effort has been made to reduce public expenditure to the lowest possible limit, regard being had to the security and efficiency of the State, to public obligations, and to the necessity of relieving our citizens to the utmost extent from the burdens which now rest heavily on them. Retrenchment upon so great a scale must necessarily involve hardship to individuals and postponement of public hopes. But in a time of great industrial depression, such as that through which the world is at present passing, it is a necessity of the situation that economy be practised by all, and in every direction; and I look for your support in securing the economies which are essential." Referring to the great and continued volume of unemployment His Majesty said: "The only remedy for this distressing situation is to be found in the appeasement of international rivalries and suspicions, and in the improvement of the conditions under which trade is carried on all over the world. For these reasons I welcome the arrangements which are now being made for the meeting of an International Conference at Genoa, at which I trust it will be possible to establish peace on a fair basis in Europe and to reach a settlement of the many important questions arising out of the pressing need for financial and economic reconstruction." The programme of legislation foreshadowed is light. It includes a Bill to amend the Criminal Law Amendment Acts, 1885 to 1912. This would seem to indicate that the Government have decided to adopt, as an official measure, proposals on the lines of those put forward in the ill-fated Bill introduced in the House of Lords last year by the Bishop of London, but which was withdrawn, after having passed through both Houses, because of differences which arose between the Lords and the Commons on certain amendments.

Health Insurance.

The Minister of Health, Sir ALFRED MOND, introduced a Bill increasing the rate of contribution to national health insurance by one-halfpenny a week each from employer and employed. An extension of benefit is contemplated as regards dental treatment.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Feb. 13th.

WAR: at 5.30 P.M.
Paper:
Lieut.-Colonel C. R. Sylvester-Bradley: Stature in Relation to Physical Fitness.

Tuesday, Feb. 14th.

THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.
Papers:
Dr. H. H. Dale and Major C. E. White: An Experimental Method of Determining the Therapeutic Efficiency of "914" Preparations.
Dr. R. L. Mackenzie Wallis: Tests for Hepatic Insufficiency after Arsenobenzol Treatment.
Dr. T. H. G. Shore: Effects of Arsenobenzol Treatment on the Kidney and Liver as seen in cases which occurred in France.

PSYCHIATRY: at 8.30 P.M.
Paper:
Dr. Helen Boyle: The Ideal Clinic for the Treatment of Nervous and Borderland Cases.

Wednesday, Feb. 15th.

HISTORY OF MEDICINE: at 5 P.M.
Note by the President (Dr. Charles Singer): Recently Discovered Inscriptions Recording Ancient Cures.
Papers:
Dr. F. G. Crookshank: The "Trousse-galland."
Dr. D. Haldin Davis: A Very Early Illustration of a Skin Disease.

Thursday, Feb. 16th.

DERMATOLOGY: at 5 P.M. (Cases at 4.30 P.M.)
Dr. Chamberlin (introduced by Mr. McDonagh) will show a case of Arsenical Dermatitis; special treatment.
Other cases will be shown.

Friday, Feb. 17th.

OTOLOGY: at 5 P.M. (Cases at 4.45 P.M.)
Cases and Specimens will be shown by Dr. Dan McKenzie, Mr. A. H. Cheatle, Mr. G. J. Jenkins, Mr. Richard Lake, and others.

ELECTRO-THERAPEUTICS: at 8.30 P.M.
Mackenzie Davidson Memorial Lecture:
Dr. G. W. C. Kaye: Radiology and Physics.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. 1.
MONDAY, Feb. 13th.—8.30 P.M., Lecture (in English): Prof. Henri Hartmann, M.D. Paris, Hon. F.R.C.S. Eng.: Inflammatory Strictures of the Rectum.

THE ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W. 1.
THURSDAY, Feb. 16th.—7.15 P.M. Demonstration. 8.15 P.M., Paper: Major F. W. Cragg, I.M.S.: Relapsing Fever in India.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
FRIDAY, Feb. 17th.—9 P.M., Mr. D. S. M. Watson: History of the Mammalian Ear.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
MONDAY, Feb. 12th.—5 P.M., Arris and Gale Lecture: Prof. V. Zachary Cope: The Nerve-supply of the Parietal Peritoneum and the Subperitoneal Tissues.
WEDNESDAY, 5 P.M., Arris and Gale Lecture: Dr. F. W. Edridge-Green: New Researches in Colour Vision.
FRIDAY, 5 P.M., Prof. Swale Vincent: A Critical Examination of Current Views on Internal Secretion.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, Feb. 13th.—5 P.M., Dr. Arthur Saunders: Tumours and Cysts of Liver.
TUESDAY.—5 P.M., Dr. Pritchard: Endocrine Glands.
WEDNESDAY.—5 P.M., Mr. Donald Armour: Practical Surgery.
THURSDAY.—5 P.M., Dr. W. Byam: The Invalid from the Tropics. (Open to all Medical Practitioners.)
FRIDAY.—5 P.M., Dr. Grainger Stewart: Nervous Diseases.
SATURDAY.—2 P.M., Dr. Owen: Medical Out-patients.
Daily:—10 A.M., Visit of Post-Graduates to Wards. 2 P.M., In-patient, Out-patient Clinics and Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N. 15.
Lectures:—MONDAY, Feb. 13th.—3.30 P.M., Dr. L. Yealland: Examination of the Motor Nervous System.
TUESDAY.—2.30 P.M., Dr. J. Metcalfe: X Ray Examination—Abdominal Diseases.
THURSDAY.—4.30 P.M., Mr. H. W. Carson: Intestinal Obstruction.
Daily:—10 A.M., Ward Visits. 2 P.M., In-patient and Out-patient Clinics and Operations.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, Marylebone, W.
MONDAY, Feb. 13th.—5.30 P.M., Dr. Goodall: Goitre Hearts.
Daily:—10 A.M. and 2 P.M., Out-patients and In-patients.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC POST-GRADUATE COURSES, Queen-square.
MONDAY, Feb. 13th.—12 noon, Dr. Greenfield: Paths of Infection of Central Nervous System. 2 P.M., Dr. Hinds Howell: Out-patient Clinic. 3.30 P.M., Dr. Aldren Turner: Paraplegia (2).
TUESDAY.—2 P.M., Dr. Grainger Stewart: Out-patient Clinic. 3.30 P.M., Dr. Risien Russell: Disseminated Sclerosis (2).
THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Bailey: Electrical Methods in the Treatment of Nervous Disorders.
FRIDAY.—2 P.M., Dr. Gordon Holmes: Out-patient Clinic. 3.30 P.M., Mr. Sargent: Focal Epilepsy.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street.
THURSDAY, Feb. 16th.—4 P.M., Dr. Pearson: Vomiting as a System.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
THURSDAY, Feb. 16th.—6 P.M., Chesterfield Lecture: Dr. W. Knowsley Sibley: Seborrhœa and Psoriasis.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Municipal Hospital, Onslow-road, Balham.
WEDNESDAY, Feb. 15th.—4 P.M., Dr. Grainger Stewart: Nervous Sequelæ of Influenza.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.
Post-Graduate Course on Infant and Child Welfare.
WEDNESDAY, Feb. 15th.—6 P.M., Dr. Eric Pritchard: Breast Feeding.
FRIDAY.—Artificial Feeding of Infants.

BRITISH MEDICAL ASSOCIATION (CHESTERFIELD BRANCH) POST-GRADUATE COURSES.
FRIDAY, Feb. 17th.—(At Chesterfield Royal Hospital Board Room) 2.30 P.M., Dr. Barnes; Painful Indigestion. 3.15 P.M., Dr. Hay: Indications for Sight Testing.

BRITISH MEDICAL ASSOCIATION (NORTH OF ENGLAND BRANCH).
FRIDAY, Feb. 17th.—1 to 5 P.M., at the Royal Victoria Infirmary, Newcastle-on-Tyne. Scientific Demonstrations.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, Feb. 14th.—4.30 P.M., Dr. H. R. Dean: The Use of Antiserum.

MANCHESTER BABIES' HOSPITAL POST-GRADUATE LECTURE, Slade-lane, Manchester.
SATURDAY, Feb. 18th.—4 P.M., Dr. Leonard Findlay: Rickets.

ST. MARY'S HOSPITALS POST-GRADUATE LECTURE, Whitworth-street West Branch, Manchester.
FRIDAY, Feb. 17th.—4.30 P.M., Mr. Morley: Some Common Developmental Anomalies.

MANCHESTER FRENCH HOSPITAL, POST-GRADUATE LECTURES, 24, Acomb-street, Whitworth Park.
THURSDAY, Feb. 16th.—4.30 P.M., Dr. A. C. Magian: Cancer of the Cervix Uteri.

ANCOATS HOSPITAL.
THURSDAY, Feb. 16th.—4.30 P.M., Mr. Hughes: Fæcal Fistula.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.
Lectures on Tuberculosis and Public Health.
WEDNESDAY, Feb. 15th.—4 P.M., Dr. M. S. Paterson: The Success and Failure of Sanatorium Treatment.

PEOPLE'S LEAGUE OF HEALTH, Royal Society of Arts, John-street, London, W.C. 2.
Course of Lectures on the Mind and What We Ought to Know About It.
MONDAY, Feb. 13th.—6 P.M., Dr. R. H. Cole: Sensation, Perception, Ideation, and Attention.

Appointments.

PHILIP, J. L. R., M.B., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for Allendale.

Hospital for Diseases of the Throat, Golden-square, W.: ORMEROD, F. C., M.D. Vict., F.R.C.S. Edin., and BEDFORD RUSSELL, H., F.R.C.S. Eng., Hon. Assistant Surgeons.

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—H.S. £150.
Ayr District Asylum.—Asst. P. £400.
Belgrave Hospital for Children, 1, Clapham-road.—H.P. and H.S. Each £100.
Birmingham and Midland Ear and Throat Hospital.—Jun. H.S. £200.
Birmingham, Queen's Hospital.—Asst. Visiting Anæsth. £100. Also H.P.'s and H.S.'s. Each £90.
Cancer Hospital (Free), Fulham-road, S.W.—H.S. £150.

City of London Hospital for Diseases of Chest, Victoria Park.—H.P. £125.
City of London Maternity Hospital, City-road.—Res. M.O. £100.
Coventry and Warwickshire Hospital.—Res. H.P. £200.
Durham County and Sunderland Eye Infirmary.—Asst. S. £500.
Durham County Hospital.—H.S. £150.
Eday, Orkney, Parish Council.—M.O.
Exeter, Royal Devon and Exeter Hospital.—H.P. £150.
Farringdon General Dispensary, &c., Holborn Circus.—Hon. Phys.
Gloucester County Mental Hospital.—Jun. A.M.O. £350.
Greenwich, Dreadnought Hospital.—H.S. £150.
Hamilton, Hairmyres Sanatorium and Colony.—Res. P. Supt. £600.
Hastings Union.—Res. M.O. £450.
Hospital for Sick Children, Great Ormond-street.—H.S. £100.
Hull, City and County of Kingston-upon-Hull.—Asst. M.O. £500.
Hull Royal Infirmary.—Asst. H.S. £150.
Johannesburg, University College.—Prof. of Anatomy. £1000.
Leamington Spa, Warwick Union.—M.O. £125.
Liverpool Royal Southern Hospital.—Two H.P.'s and three H.S.'s. Each £100.
Londonderry County and County Borough Infirmary.—S.
London Temperance Hospital, Hampstead-road.—Res. Cas. O. £150. Asst. Res. M.O. £120. Also Asst. S.
Manchester Ear Hospital.—Anæsth. 15 guineas.
Manchester Northern Hospital for Women and Children.—H.S. £200.
Manchester Royal Eye Hospital.—Jun. H.S. £120.
Manchester Royal Infirmary.—Two Asst. Surg. Officers. £75.
National Hospital for the Paralysed, &c., Queen-square.—Asst. Surg. to Ear, Nose, and Throat.
Oxford, Radcliffe Infirmary and County Hospital.—Cas. H. S. £200.
Plymouth, South Devon and East Cornwall Hospital.—Hon. Pathologist.
Prison Medical Service.—M.O. £300.
Queen's Hospital for Children, Hackney-road.—Res. M.O. £200.
Royal Northern Hospital, Holloway, N.—Anæsthetist. £10 10*s.*
Royal Waterloo Hospital, Waterloo-road, S.E.—Cas. O. £150.
St. George's Hospital, S.W.—Res. Asst. S. £350.
St. Mary's, Islington, Hospital, Highgate Hill.—Asst. M.O. £350.
Salisbury General Infirmary.—Hon. Path. and Bact.
Stoke-on-Trent, North Staffordshire Infirmary.—Hon. Asst. Ophth. Surg.
Taunton and Somerset Hospital.—Sen. Res. H.S. £200.
University of London.—Prof. of Surgery. £2000.
Ventnor, Royal National Hospital for Consumption, &c.—Asst. Res. M.O. £300.
Watford Urban District.—M.O.H. &c. £800.
West End Hospital for Nervous Diseases, Gloucester Gate.—Res. M.O. £200. H.P. £100.
Weston-super-Mare Hospital.—H.S. £150.
Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Wadebridge, Cheltenham (Gloucester), Pollokshaws (Lanark) Topsham (Devon), and Wool (Dorset).

Births, Marriages, and Deaths.

BIRTHS.

BENSTED-SMITH.—On Feb. 2nd, at Gara, Newton Ferrers, South Devon, the wife of Dr. W. F. Bensted-Smith, of a son.
IREDELL.—On Feb. 3rd, at Nottingham-place, W., the wife of Dr. C. E. Iredell, of a son.
MATTHEW.—On Jan. 30th, at Forest House, Chingford, the wife of Dr. A. W. Matthew, of a daughter.
SQUIRES.—On Feb. 1st, at Glenhouse-road, Eltham, to Hilda, the wife of Herbert Chavasse Squires, M.D., M.R.C.P.—a daughter.

MARRIAGES.

HAMILTON—HOYTE.—On Jan. 30th, at St. John the Evangelist, Nottingham, Captain Henry Fleming Hamilton, F.R.C.S.E., to Bessie Frances, fourth daughter of Mr. and Mrs. William H. Hoyte, Nottingham.
LEWIS—WRIGHT.—On Jan. 31st, at St. Stephen's Church, Hounslow, Harold Warburton Lewis, M.B., B.S., to Helen Wisbey, only daughter of Mr. and Mrs. A. J. Wright, of Hounslow.
PATTERSON—FARR.—On Jan. 30th, at St. Thomas's Church, Portman-square, Captain A. F. I. Patterson, D.S.O., R.A.M.C., to Alice Kathleen, eldest daughter of the late J. T. Farr, of Staunton Grange, Notts.
STATHAM—MACQUISTEN.—On Feb. 4th, at St. Stephen's Church, Edinburgh, Colonel John Charles Baron Statham, C.M.G., C.B.E., A.M.S., to Jessie, eldest daughter of F. A. Macquisten, K.C., M.P., and Mrs. Macquisten, 53, Great King-street, Edinburgh.
STONE—POLAND.—On Feb. 1st, at St. Saviour's, Walton-street, Gerald William Stone, M.R.C.S., L.R.C.P., to Celina Violet Travers, younger daughter of the late Vice-Admiral J. A. Poland and of Mrs. Poland, 4, Cresswell-gardens, South Kensington.

DEATHS.

KINGSFORD.—On Jan. 29th, at Sherwood, Woking, Surrey, after short illness, Bertram Harold Kingsford, M.D. Lond., &c., in his 52nd year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE ENDOCRINE FUNCTIONS OF THE FEMALE REPRODUCTIVE ORGANS.

BY SWALE VINCENT, LL.D., D.SC., M.D., F.R.S.E.,
PROFESSOR OF PHYSIOLOGY, UNIVERSITY OF LONDON, MIDDLESEX HOSPITAL MEDICAL SCHOOL.

(Abstract of the Ingleby Lectures delivered at the University of Birmingham, 1921.)

SINCE the introduction of the terms "hormone" and "endocrine" a host of writers have seized upon them and dragged them into the discussion of every conceivable biological topic. The terminology of the subject has far outstripped our actual knowledge, and a multitude of round sounding words has crept into medical literature without adequate justification from either the experimental or the clinical standpoint. A biologist has only to discover a group of cells whose function is not clear and it is instantly charged with that of internal secretion; a medical man need only find some baffling symptom or syndrome, and forthwith the magical word "hormone" relieves him of all further responsibility for investigation. It has frequently happened in the history of medicine that a new conception, carrying with it a new word, is thus ridden to death, and current views on the whole subject of internal secretion demand a severely critical examination, for no other branch of physiology is littered with so many vague, unproved, and, in many case unprovable hypotheses. A newly-coined word appears every few months; the term "hormone" is in everybody's mouth, yet only one alleged hormone—adrenin—has been chemically identified, and this has not been proved to be a hormone at all. It is perhaps not altogether a matter for rejoicing that the word was ever introduced. The term "internal secretion" is better in many ways and is, at any rate, sufficiently definite to describe the little-known substances derived from organs which are admittedly organs of internal secretion. It seems to be established that the thyroid gland, the parathyroid bodies, the adrenal body ("cortex"), the pancreas (possibly the "islets of Langerhans"), the duodenal mucous membrane, the reproductive organs (possibly the "interstitial" cells), and the pituitary body furnish important internal secretions; the pineal gland ought perhaps to be included in the list. Yet in none of these cases (unless we accept Kendall's work on Thyroxin) has the chemical nature of the active substance been ascertained.[1] Adrenin, the substance isolated by Takamine from the chromaphil tissues, has not completely justified its claim to be reckoned among internal secretions.

Necessity of Close Definition.

The term internal secretion should be so employed that it corresponds as far as possible to "external secretion," or secretion by means of ducts. Secretion is the preparation and setting free of certain substances, the raw material for which is supplied by the circulating blood. Such secretion is the function of certain specially differentiated secretory epithelial cells. The chief morphological sign of special differentiation in gland cells is the presence of granules which undergo periodical changes in number and position according to the stage of activity of the gland. It is not, perhaps, possible to insist on the recognition of granules and changes as definite as those in the pancreatic cells before we admit a structure into the category of internally secreting glands, but it is essential that the constituent cells should have the general character of glandular—i.e., secretory—cells. This is in some instances not altogether an easy matter to determine, and there is some discussion as to whether such a tissue as the chromaphil may reasonably be supposed to have a secretory function. That a discussion of this kind should have arisen in connexion with a structure generally supposed to be internally secretory shows how little we know about the act of secretion in such a case.

Internal Secretion Defined.

Secretion, then (internal or external), represents a highly specialised grade of metabolic activity, and should be clearly distinguished from general metabolism. This is opposed to the view that all organs and tissues in the body furnish internal secretions. We are now in a position to define internal secretion. The process consists in the

[1] Since the above was written much evidence has been accumulated that thyroxin is the active substance of the thyroid gland.

preparation and setting free of certain substances of physiological utility (the raw materials for which are supplied by the circulating blood) by certain cells of a glandular type; the substances set free are passed out not on to a free surface, but into the blood-stream.

Effects of Extirpation of the Ovaries.

In males it is well known that interference with the discharge of the seminal fluid has no effect on the secondary sexual characters, while removal of the testis has a very marked effect. Similarly in the female any operation which abolishes the normal passage of the ova down the Fallopian tubes into the uterus has no influence on the female secondary sexual characters, while removal of the ovary results in the changes about to be described. These facts are the basis for the theory of internal secretion as applied to the gonads.

Our knowledge of the effects of extirpation of the ovaries before the age of puberty in the human subject is very limited. A large number of operations must have been performed in which female children were deprived of both ovaries, but no systematic account of them seems to be in existence. It is often stated that double ovariotomy, if carried out before puberty, besides preventing the onset of puberty and the occurrence of menstruation, produces noticeable effects on the general form and appearance of the subjects. In illustration it is affirmed that the natives in certain semi-barbarous parts of Asia perform ovariotomy upon young girls who, when they grow up, are devoid of many of the characteristics of their sex, and in certain cases are said to present resemblances to men. These female castrates are alleged to be tall and with accessory apparatus of the genitalia remaining entirely undeveloped. This account seems to be derived from the observations of Roberts in the East Indies, though I can find no precise reference to his writings. The above account is quoted by several writers but their statements do not bear the stamp of great exactness, and it seems on the whole most likely that the natives really do nothing more than carry out certain mutilations of the external organs.

Cessation of Menstruation.

In women castration after the age of puberty is, of course, frequently performed by gynæcologists. When extirpation of both ovaries is carried out, the most noticeable effect is the cessation of menstruation. There is in most cases atrophy of the uterus and vagina. The external genitals, especially the clitoris, shrink. The effect on the breasts varies in different cases. Sometimes these atrophy, while in other cases they appear to increase in size. This latter result, when it occurs, may perhaps be attributed to obesity, which is a usual result of the operation. Sexual desire may not be affected to any considerable degree, at any rate for some time. It is stated that it may even be increased temporarily. But obviously exact information on this point is difficult to obtain. After the operation the skin is said to become lighter and the hair more luxuriant. The nipples are reduced in size and the pigmentation of the areolæ becomes less marked. The effects on metabolism are not certainly known. It is common to find a series of symptoms attributable to excitation of the autonomic nervous system. These are emotional disturbances—headache, fainting, intestinal disturbances, feelings of heat and cold, and several other minor manifestations.

Effect of Castration on Lower Animals.

In some lower animals removal of the ovaries leads to the appearance of male characters. Cases are recorded in which female deer possessed horns. In these the ovaries were abnormal or the animals old. Similar cases are not uncommon among female birds; thus, a duck assumed the plumage of the drake and a hen took on the secondary characters of a cock. A hen pheasant had male plumage correlated with an abnormal ovary. Numerous other examples are recorded. Such cases are difficult or impossible to explain on any other hypothesis than that the secondary male characters are normally present in a latent form in the female, and that the ovaries exert an inhibitory influence over their development. But castration in the male does not lead to the assumption of female characters, so that there is no reason to suppose that in the male the female characters are present in latent form.

The effects of ovariotomy have been studied in some detail in the case of rabbits. In these animals the degeneration of the uterus is easily observed and its extent seems to be directly proportioned to the time which has elapsed since the operation. After six months the uterus is found to be in a state of fibrosis and the glands have entirely disappeared. The epithelium is attenuated and the muscle fibres disintegrated. The Fallopian tubes have undergone atrophy. If the ovaries are removed from very young rabbits the uterus and Fallopian tubes remain in the infantile condition. Ovarian extirpation in dogs results in a marked augmentation in the vaso-motor reaction to a standard dose of nicotine. Nicotine causes a marked rise of blood pressure, which is very much increased after extirpation of the ovaries. (The reaction to adrenin is not similarly increased.) The phenomenon may reasonably be interpreted as indicating hyperexcitability of the sympathetic nervous system, and corresponds in a general way with what we have seen to occur after ovariotomy in the human subject.

All the foregoing facts show that the ovary has a pronounced influence in helping to develop and to maintain the female secondary sexual characters. Although some observers have urged that the effects of ovariotomy (on the uterus, for example) are due to interference with the blood-supply at the operation, or to damage to nerves, the evidence as to the influence of some kind of internal secretion on the part of the ovary is now tolerably conclusive.

Transplantation of Ovaries.

The possibility of removing the ovaries from their normal position in the female body and grafting them on to various other parts of the same or different animals has received a considerable amount of attention during the last few years. The terminology has been confused by the deplorable use of the same word for different operations. In our account the term "autoplastic" is employed when the ovary is transplanted into some part of the body of the same individual from which it was removed. A "homoplastic" graft is one which is made from one animal to another of the same species, while "heteroplastic" is the term applied to grafting from one individual into another of a different species. The following is a description of a typical autoplastic operation: "The abdomen of a three-quarter grown doe was clipped free from hair, washed and cleansed with perchloride, ether was given on an open mask and abdominal section performed. The left ovarian artery was tied and the left ovary excised and placed in normal saline; a small incision was then made through the peritoneal and capsular covering of the left kidney; a small part of the capsule was freed from the renal tissue; the ovary was then passed through the incision under the capsule and was thus retained in close proximity to the kidney substance; the incision in the capsule was then sewn up with fine silk. The right ovary was excised in a similar manner, and the skin being well retracted from the edge of the abdominal incision, it was sewn on to the outer surface of the right external oblique muscle. The abdominal wound was then closed with silk-worm gut, and the rabbit placed in an artificially heated hutch."

In the human subject transplantation of ovarian tissue has been frequently carried out, but from the reports of cases it is not always possible to learn what degree of success has attended the operation. When an ovary is transplanted from one individual to another (homoplastic transplantation) and when pregnancy and birth of young occur, it is difficult to imagine *a priori* what will be the influence respectively of the original mother and the foster-mother on the characters of the offspring. Magnus in 1907 reported the birth of young on the part of a black rabbit the ovaries of which had been removed and replaced by those of a white rabbit. The markings of the young indicated a "foster-mother" influence (i.e., an influence exerted by the animals into which the ovaries were grafted). In the same year Guthrie successfully transplanted ovaries from hen to hen. Such fowls laid eggs which were hatched. The chicks partook of some of the foster-mother's characters.

Recent experiments have shown that in some species, at any rate, a successful homoplastic transplantation of an ovary will have a similar effect to that of an autoplastic graft in preventing the degeneration of the uterus. The transplanted ovaries are normal except that the germ epithelium is absorbed and in some cases there appears to be a large proportion of luteal tissue. The transplanted ovaries show the same cyclical changes as the normal ovaries. Thus, in animals killed shortly before the beginning of the breeding season large follicles are found in the grafts, while at a later period corpora lutea are present, showing that ovulation occurs in the transplanted ovaries. In one case an autoplastic graft was found to be normal after 14 months, while a normal homoplastic graft was composed entirely of healthy ovarian tissue (with follicles and ova) after six months. In these cases the ovaries were grafted into the substance of the kidneys.

Autoplastic transplantation is always found to be more easily carried out than homoplastic. The most successful homoplastic operations were obtained when two rats from the same litter were employed. The more recent observers, working with rabbits and guinea-pigs, state that ovarian grafts prevent atrophy of the uterus for a certain time only, but that ultimately degeneration takes place in the transplanted tissue, followed by atrophy of the uterus. The rate of degeneration varies with the site of implantation, the more vascular the site the longer the persistence of the graft.

Transplantation experiments have been utilised also for the study of the relationship between the ovary and the mammary gland. It has been shown by Steinach that if ovaries are transplanted into young male guinea-pigs the mammary gland develops and forms acini and may even secrete milk. This author believes that the ovarian inter-

stitial cells are responsible for this effect. These results have been confirmed, but it is not clear which elements of the ovary are the active agents. Steinach and others have recently carried out experiments which tend to show that the internal secretion of the sex glands acts in a sex specific manner—that is to say, the male gonad furthers the development only of male sex characters and inhibits the development of female sex characters, whereas the female gonad furthers the development of female sex characters and inhibits the development of male sex characters.

The sex characters of the vertebrata may be grouped as follows: 1. Sex characters not dependent on the "puberty gland" of Steinach (interstitial cells). These are evolved characters of the non-sexual embryonic form. 2. Sex characters dependent on the "puberty gland" which evokes these characters by acting on the non-sexual embryonic form by means of augmentation or inhibition.

Sand has recently reported that, as a result of simultaneous transplantation of ovary and testis into a castrated young animal, he has succeeded in producing a true experimental hermaphroditism (somatic and pyschic). He has also brought about a similar result by formation of artificial ovario-testes. Steinach states that he succeeded in making the transplanted organs grow together as a whole by placing them directly in contact with each other. Sand has made use of a direct formation of ovario-testes by a special technique, that is, placing the ovaries in the middle of the testes, and leaving the latter in their natural position—*Intratesticular ovarian transplantations*. These experiments were carried out upon rats and guinea-pigs.

Extirpation of the Corpus Luteum.

Prenant in 1898 was apparently the first to suggest that the corpus luteum is an organ with an internal secretion. He thought that the body influences general metabolism and prevents ovulation during pregnancy or between the œstrous periods. This theory has been supported by several investigators and seems now to be firmly established by the recent investigations of Loeb. In 66 guinea-pigs it was ascertained that spontaneous ovulation rarely occurs within 16–18 days after a preceding ovulation. Next, in 25 animals all the yellow bodies were successfully removed, and in 92 per cent. of these ovulation occurred within 12–16½ days after coitus, showing a marked shortening of the interval between ovulations. Thus the presence of the corpus luteum prevents ovulation. Pregnancy *per se* does not inhibit ovulation. As we have already seen, the injection of corpus luteum extract into fowl prevents ovulation.

As pointed out by Loeb, the acceleration of ovulation produced by extirpation of the corpora lutea is limited. The next ovulation has to await the maturation of follicles. Without the presence of mature follicles, a new ovulation cannot take place, even in the absence of corpora lutea.

The Corpus Luteum and the Gravid Uterus.

Another discovery has been made as a result of experiments involving extirpation of the corpora lutea. The idea that the corpus luteum might provide an internal secretion subserving the fixation of the ovum in the uterus was first conceived by Gustav Born, and bequeathed to Fraenkel to work out. This author came to the conclusion that the corpus luteum ministers in some way to the needs of the gravid uterus. A series of experiments upon rabbits was carried out, the ovaries being removed at intervals varying from one to six days after the occurrence of coition. The rabbits were killed and it was found that the extirpation of the ovaries had prevented the fixation of the embryos or had caused abortion. In other cases the yellow bodies were cauterised out and similar results were obtained.

Marshall and Jolly extirpated the ovaries from pregnant dogs and rats. In the dogs ovariotomy was performed at intervals of from three days to four weeks after impregnation. The pregnancy was discontinued in every case except one, in which a portion of the right ovary, which contained the degenerate remains of two undoubted corpora lutea, was found post mortem, three days after parturition, when the dog was killed. In this experiment ovariotomy was performed three days after copulation and parturition occurred 50 days subsequently. Only a single pup was produced and birth was premature. The pup died after being suckled normally for three days.

In the rats pregnancy was not continued in any case in which ovariotomy was performed during the first six days of pregnancy. In other cases, in which the ovaries were removed at periods from the sixth day until near the end of pregnancy, the young were produced normally at full term. Control experiments were also carried out in which the abdominal cavity was opened up during an early stage of pregnancy and the ovaries cauterised, or in which one ovary was removed and not the other, and in these experiments the course of pregnancy was not interfered with. Marshall and Jolly did not attempt to remove only corpora lutea, while leaving the rest of the ovary. Their experiments fully confirm those of Fraenkel, and have since been repeated by several observers. There is no evidence that the corpus luteum governs the fixation of the embryo otherwise than by stimulating the uterine mucous membrane to hypertrophy.

General Considerations.

Some general considerations are here given in regard to the relation between the internal secretions and the female reproductive functions. Some authors have, not without a show of reason, insisted that the ovaries are not the only organs which determine the secondary sexual characters. Thus it is urged that the quality of "femininity" is dependent on the manifold activities of all the internal secretions, including those coming from the adrenal bodies, the thyroid, the pituitary, as well as those derived from the ovary, corpus luteum, and placenta. The adrenal cortex appears to have certain important functions in connexion with the development and growth of the sex organs. Tumours of the adrenal cortex are frequently associated with sex abnormalities. When cortical tumours occur in the female there is a development of male secondary characters and hypoplasia of the internal generative organs. The adrenal cortex is enlarged during breeding and pregnancy. As for the thyroid this is relatively larger in women than in men, and this is specially noticeable during puberty, menstruation, and pregnancy. Sexual intercourse increases the size and activity of the gland. It is stated that the ovaries exercise an inhibitory action on the thyroid; in fact, the latter becomes hyperactive after castration and there is an increase of the colloid substance. This is the cause, it is said, of the large number of cases of exophthalmic goitre after the menopause. The pineal gland is alleged to have an influence on sexual precocity. The pituitary has an influence on many of the metabolic functions necessary for the establishment of puberty. Removal of the thymus, performed before puberty, causes a rapid development of the genital gland. The whole subject is complicated by the influence of the various internally secreting organs upon each other.

The psychological characteristics of women are, of course, partly accidental and dependent on social conditions, but of those which are more fundamental, some depend on the influence of the ovary, and others on general metabolic processes, which are largely conditioned by the general reactions of the internally secreting glands.

NON-RESIDENT PRIVATE NURSES.

IN view of its obvious disadvantages it is remarkable that for private nurses the custom of living in still persists. A resident nurse, even when officially off duty, is always liable to be called, and it is this, together with the constant need of adaptation to the customs of different households, that makes the life of the private nurse a harassing one. Moreover, in these days, the practitioner who advises that a nurse should be obtained is often met with opposition on the ground of lack of room and inadequate domestic service to attend to the needs of an additional member of the household. The offer of a visiting nurse is usually accepted with gratitude, but the number of these in practice does not seem very numerous at present. It is probable that an increased supply would soon create a demand for the services of non-resident nurses, even by those who have at present to be content with one who lives in. The districts at present served by visiting nurses include the following:—

Districts.	Nurses available.	Where obtainable.	Telephone.
Mayfair	1	N.C.	Lang. 2862
„	1	B.T.N.I.	Kens. 1500
Maida Vale	2	N.C.	Lang. 2862
Victoria	1	„	„
North-West London	1	„	„
Hampstead	1	„	„
„	1	P (1)	Hamp. 8563
St. John's Wood ..	1	P (2)	„ 3880
Kensington	3	B.T.N.I.	Kens. 1500
Chelsea	2	„	„
Bayswater	1	„	„
West End	1	N.I.	Padd. 2359

N.C. = Nurses Coöperation, 22, Langham-street, W. 1.
B.T.N.I. = Belgravia Trained Nurses Institute, 39, Royal-avenue, Chelsea, S.W. 3.
N.I. = Nurses Institute, 6, Porchester-square, Hyde Park, W. 2
P (1) = Nurse Matthew, 26, Priory Court, Quex-road, N.W.
P (2) = Miss D. Mudie, 27, Alma-square, N.W. 8.

The Onslow Trained Nurses can generally arrange for a visiting nurse. Mrs. Coward, of 11, St. George's-square, S.W., can supply nurses to attend daily by the week. The Nursing Sisters Institution, of 10, Collingham-road, S.W. 5, can supply non-resident nurses by the week, and charges £1 1s. for billeting, and in the future hope to have two nurses available for daily visits in Kensington. Further,

the Visiting Nurses Society, at 129, Albert Palace Mansions, Battersea Park, S.W., provide visiting nurses for private cases and for operations, and any of the nurses attached to the Belgravia Trained Nurses Institute can take a daily case, provided it is within easy 'bus or underground reach of Kensington, Bayswater, or Chelsea. These nurses return to a hostel to sleep, for the extra charge of £1 10s. a week for sleeping and one meal in excess of the usual weekly nursing fee.

The usual fees charged by visiting nurses are as follows: One day not exceeding eight hours, from £1 1s.; one daily visit per week of six days, from £1 1s. per week; single daily visits, enema, douche, &c., from 5s. 6d. each; attendance at operations, from £1 1s.; massage, from 5s. a visit; last office, from £1 1s. These are minimum charges for town, and should the case be a long one a reduction of fee is frequently made.

We should be glad to hear of more coöperations who employ visiting nurses on their staff and other private nurses who are available for this work.

ARTERIAL PRESSURE IN TUBERCULOSIS.

SINCE Marfan drew attention to the association of arterial hypotension with tuberculosis, numerous writers have extolled the value of pressure observations for prognosis or even for diagnosis of the pulmonary form. Dr. M. Losdijk now publishes in the *Scalpel* (Jan. 21st) the result of extended observations on 93 cases during sanatorium treatment. He finds that a single measurement has but little value, it is only by comparing the results of several measurements taken over a certain interval of time that some conclusion may be arrived at. Speaking generally, a tendency upwards of the pressure indicates a favourable prognosis, and a tendency downwards is a discouraging sign of active progress of the disease, especially when accompanied by a pulse unequal in force and frequency. A considerable rise or fall (of as much as 3 or 4 cm.) is always of significance. As a method of arriving at a diagnosis of early tubercle Dr. Losdijk would use pressure observations with caution, and not draw any conclusion until a number of consecutive examinations showed that the hypotension was not transitory.

THE FIRST NAVAL MEDICAL DIRECTOR-GENERAL.

Sir William Burnett, the first director-general of the Naval Medical Department, has of recent years been merely a vague tradition to the Service, although an account of his life was published in THE LANCET (1850, ii., 703). In the *Journal of the Naval Medical Service* for January Sir Humphry Rolleston gives a vivid story of his life. His career and that of Sir James McGrigor, his more famous contemporary, were curiously similar. They were both Scotsmen, they both became directors-general of their respective services. Sir James McGrigor (1771–1858) served in the Peninsula, and was director-general of the Army Medical Service from 1815 to 1851, while Sir William Burnett (1779 to 1861) served in the fleet at the battles of St. Vincent, the Nile, and Trafalgar, and was in charge of the Naval Medical Department from 1831 to 1855. They were given the K.C.B. by Queen Victoria on the same day, August 17th, 1851. Each did a great deal in a time of retrenchment to advance the interests of the officers of his department, and each in his own service established that system of reports and nosological returns, which shows from year to year how great are the tasks of medical officers, and what fine results they achieve. Whether on account of the nosological returns is not stated, but in 1841 the medical officers of the navy presented Sir William Burnett with his portrait, painted by Sir Martin Archer Shee, in which he appears as a tall man of good presence, his face expressing experience, caution, and determination. After Trafalgar he was put in medical charge of camps of prisoners-of-war, where he gained considerable credit. In 1814 he became physician to the Russian fleet of 20,000 men, and his services were highly appreciated by the Czar. Returning to England on half pay, he established himself in successful practice in Chichester, but in 1822 he was recalled to service as a medical commissioner on the Victualling Board, and at the same time he carried on a considerable private practice at 43, Wimpole-street. He became in 1831 the sole medical commissioner; in 1832 the title of his office was changed to physician-general of the fleet, in 1840 to inspector-general of hospitals and fleets, and in 1844 to director-general of the Medical Department of the Navy. He retired in 1855 on a special pension of £1000 a year. In 1823 Burnett had been appointed physician-in-ordinary to the Duke of Clarence, who, now William the Fourth, knighted him in 1831. Like Sir John Watt Reid and Sir J. Porter, other medical directors-general, he was a graduate of Aberdeen. He induced medical officers in the navy to use the stethoscope, and introduced zinc chloride solution as a disinfectant and for dressing wounds (1 per cent.), and as a preservative of timber and of museum specimens (2 to 2½ per cent.). This solution proved very useful; in time it was replaced by permanganate, but zinc chloride had to be used again on board ship during the war, as permanganate had become very scarce. In 1843 naval medical officers were made commissioned officers (formerly they had only held warrants), and in July, 1855, just after Burnett had retired, assistant surgeons became ward-room officers. This was probably arranged at his request, and may be taken as a set off against his invention of the nosological return. He died at Chichester, and was buried at Boxgrove, in Sussex, where his son was the vicar. He wrote a good deal in later life, but left no account of the medical happenings in the large ships of the French wars.

A DOUBTFUL ADVANTAGE.

PARENTS who desire to know if their children are liable to idiocy or to mental diseases may in the future be invited to submit them to an examination of their finger prints. Dr. Poll, in *Berliner klinische Wochenschrift* of Dec. 26th records the results of examinations of 5352 persons, of whom 3844 were mentally sound, and 1508 were unsound, and claims that it is possible, by means of the pattern of the finger print, which remains the same throughout life, to distinguish the mentally healthy individuals from the lunatics. The grades of mental abnormality are so insidious that this test can hardly be expected to help in doubtful cases, but if Poll's distinctions are accepted, the finger print might have an even more important medico-legal significance.

A PAPAL HONOUR.

Dr. F. J. Paley, of Hove, has been created a Knight of the Papal Order of St. Gregory in recognition of his work as a Catholic medical man. The Order was founded by Gregory XVI. in 1831 to reward the civil and military virtues of his subjects. Dr. Paley, who is the senior surgeon to the Royal Sussex County Hospital, Brighton, has rendered devoted service to many Catholic institutions in the county for over 30 years.

W. P.—Mme. Curie's classical work on Radio-active Substances still remains the most comprehensive from the physical and chemical standpoint. In English, Sir E. Rutherford's "Radio-active Substances and their Radiations" (Cambridge University Press) is of equally wide scope. Dr. R. Knox's "Radiography and Radio-Therapeutics" (A. and C. Black) includes X rays as well as radium. Biological matters are dealt with freely in "Radium, X Rays, and the Living Cell," by H. A. Colwell and S. Russ.

Infectious Case.—As regards the carrying of infectious cases by Red Cross ambulances the practice varies in different localities. It was not the intention of the Home Service Ambulance Committee when establishing this service to relieve local authorities of their statutory obligations, but no rule was laid down and it was left to the discretion of county directors to make such arrangements as seemed most suitable locally. As a result, many of the Red Cross ambulances are used for infectious cases as well as for non-infectious cases. In spite, however, of the experience of the war during which over 7,000,000 cases in France alone were carried, without any known case of infection through the ambulances, there is still a certain amount of prejudice against the use of an ambulance for infectious cases. Many Red Cross ambulances are driven and attended by voluntary workers, who may reasonably object to deal with infectious cases, though willing to give their time and services in dealing with other forms of illness. In case of emergency any such rule of this sort would probably be suspended. In London a certain number of Red Cross ambulances are available, including one with a coach-built body, which undertake the work of carrying cases to and from nursing homes or hospitals at a moderate charge.

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